THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXXV. NEW YORK, SATURDAY, AUGUST 12, 1899. No. 7.

ORIGINAL ARTICLES.

SOME OBSERVATIONS AND CONTROVERSIAL REMARKS ON THE SPECIFIC CAUSE OF YELLOW FEVER.[1]

BY G. SANARELLI,

OF BOLOGNA, ITALY;

PROFESSOR OF HYGIENE AND DIRECTOR OF THE LABORATORY OF HYGIENE IN THE ROYAL UNIVERSITY OF BOLOGNA.

THE writing of the present paper was suggested to me by certain articles that I have read in the MEDICAL NEWS during the past year and which seem to indicate that a personal element has obtruded itself into the controversy which followed the appearance of my articles on the etiology of yellow fever. This personal element has made itself felt especially as a result of the attitude assumed by Dr. Sternberg in opposing the definitive conclusions drawn from my researches. It is true that in a recent article he has seen fit to modify his position considerably but he has not as yet withdrawn his opposition to my bacillus icteroides as the cause of yellow fever.

I respect Dr. Sternberg very much and have expressed my sincere appreciation[2] of the researches directed by the most modern scientific technic that he inaugurated on the subject of this important affection, yellow fever. I cannot understand, however, his obstinate unwillingness to concede that another has succeeded in solving the problem which proved unsolvable to him.

The first reclamations which the illustrious surgeon-general thought it well to make immediately after the publication of my original investigations, and in which he endeavored to maintain the identity of the bacillus icteroides as described by me with his bacillus X, are easy to understand and are such as might have been expected under the circumstances. But now that the question of the etiology and pathogeny of yellow fever has entered definitively into the domain of anatomico-clinical observation and of laboratory experimentation I believe it impossible to bring it back to the old ground and condemn on theoretic objections scientific conclusions.

No one knows better than I do myself how much work Dr. Sternberg did in his fruitless search for the pathogenic agent in yellow fever. I can understand then, that he would not readily concede success to another when he had himself failed. If it is true, however, that the man of science labors for the good of humanity and not for the sake of any personal satisfaction, or for self-glorification, then every laborer in the field of bacteriology can only rejoice sincerely at the successful issue of my studies. Unfortunately, this has not been the case.

It is not worth while now to go back over the old attempts to prove that the bacillus icteroides and Sternberg's bacillus X are the same micro-organism. Even Dr. Sternberg himself finally persuaded by the evidence of the facts and by the unimpeachable character of my demonstrations[1] has definitely renounced the idea of their identity with a scientific loyalty that does him honor[2].

My eminent colleague, however, gets no farther than this. He has abandoned only the first part of his opposing opinion and while conceding that the bacillus X and my bacillus icteroides are not identical, he cannot bring himself to admit that the bacillus icteroides is the causative agent of yellow fever. It must be remembered in this connection, however, that Dr. Sternberg's work on yellow fever was done some ten years ago, and that the youthful science of bacteriology has made wonderful strides in progress in that time. It will not be surprising then, if what seemed impossible at that time to Dr. Sternberg should prove comparatively easy of attainment in our day. Advances in technical methods in bacteriology made the circumstances of his investigations and mine quite different.

I have stated once before[3] certain reasons why there was not much probability of Dr. Sternberg's isolating and recognizing the bacillary cause of yellow fever during his original researches in the neighborhood of Havana. These, for there were more than one, I shall briefly repeat. Primarily Dr. Sternberg clung firmly to the idea that the seat of the specific virus of the disease was in the intestine. He seemed to have been of the opinion so commonly held by writers at that time, that a certain pathogenetic analogy existed between yellow fever and Asiatic cholera, the discovery of whose germinal cause had been such a triumph only a short time before. The symptoms and intestinal lesions which are observed in the two diseases are certainly sufficient to impose such an opinion on the observer, if he looks no further.

[1] Translated.

[2] *Annales de l'Institut Pasteur*, p. 438, 1897.

[1] *Centralblatt für Bakteriologie*, No. 22–23, 1897, and No. 10, 1898.

[2] *Centralblatt für Bakteriologie*, No. 18–19, 1899.

[3] *Centralblatt für Bakteriologie*, No. 22–23, 1897.

That Dr. Sternberg held this opinion is clear, since in his report to the United States Government[1] in his official capacity he submits as one of his conclusions a suggestion for the treatment of the disease by disinfection of the intestinal tract, an alkaline solution of bichlorid of mercury of 0.02 per cent. being employed for this purpose.

This erroneous prejudice as to the pathogenetic mechanism of the disease was sufficient without doubt to influence the whole course of his researches. For it is evident that Dr. Sternberg yielded to the preconceived notion at that time so generally accepted, that it would be possible to isolate from the contents of the intestinal tract a microbic form that would be constant for the disease.

An analogous mistake though in an opposite direction had been made just a little before that by Emmerich with regard to cholera in his studies on Asiatic cholera at Naples. Impressed with the idea then sustained by the whole school of Pettenkoffer, that this disease spread through the air, he sought unsuccessfully for the specific germ of the disease in the circulation. It was from the blood-vessels of the walls of the intestine not from their interior that he succeeded in isolating a bacillus. Further investigation showed that his famous bacillus Neapolitanus was only one of the ordinary fecal bacilli, which had by chance penetrated the walls of the intestine during the lowered resistive vitality incident to the terminal stages of the disease and so secured an entrance into the circulation. It was only a secondary infective agent not the primary cause of the disease that the discoverer had demonstrated.

It is true that Sternberg besides his investigations of the contents of the intestines made a number of cultures from the blood and the viscera, but it must be conceded by any one who reads the report of these researches in the light of modern bacteriological methods, that they leave a great deal to be desired from the point of view of our present day technical knowledge. Especially is this true when we consider how extremely difficult was the task he had set himself.

As a matter of fact his report to the United States Government contains only a description of a long series of microbes, that had been isolated, some of them directly from the blood and the cadaveric tissues of patients dead from yellow fever, but most of them from the blood or viscera of rabbits or guinea-pigs inoculated with hepatic juice, or with small quantities of the most contaminated material obtained from the stomach or intestines of yellow-fever corpses. It is evident that there would inevitably occur in the results obtained with such a primitive and defective technic very serious lacunæ, and such proved actually to be the case.

It is clear that microbes isolated after this manner in numbers, without any constant rule or uniform method, and summarily inoculated into animals on general principles must fail of individual recognition, and that the importance and specific characteristics of the micro-organismal cause of yellow fever, though present, must escape even the most sedulous attention under the circumstances. The bacillus of yellow fever must certainly have occurred in Dr. Sternberg's cultures a number of times, but it escaped his notice owing to his defective technic.

Dr. Sternberg himself now admits that during his investigations in Havana "the autopsies on yellow-fever cases succeeded one another so rapidly that a complete bacteriological examination of every case was practically impossible"[1] and that "the arrangement of his laboratory was so incomplete that it was impossible to keep animals under observation for more than five or six days after inoculation." Under these circumstances it is not hard to understand how his mission to discover the cause of yellow fever should have completely failed of its purpose.

It would seem only reasonable, then, that Dr. Sternberg, instead of trying to justify his own failure by systematically belittling the results obtained by others, should, on the contrary, be ready to admit another's success and use his influence to make the discovery better known. This impression was reproduced very vividly on me recently in reading the short note by Reed and Carroll, which was published in the MEDICAL NEWS for April 29, 1899, for their work it is announced was inspired by Dr. Sternberg himself.[2] In their article these two writers abandon as unsustainable the idea that the bacillus X and my bacillus icteroides are identical. They seek by every means in their power to damage the reputation of the bacillus icteroides and set it down as a variety of the bacillus *choleræ suis!* It is certainly not in order to demonstrate the extreme strangeness and improbability of this opinion that I have undertaken to write a new article on the subject of yellow fever, but in order to bring out clearly and denounce the levity of the critical methods habitually employed by obstinate opponents of my discovery.

I find it totally inexplicable that Drs. Reed and Carroll before attempting to launch such a paradox did not at least look up for a moment some good treatise on bacteriology, or better still, consult the classical original work of their distin-

[1] "Report on the Etiology and Prevalence of Yellow Fever," Washington, p. 85. 1890.

[1] *Centralblatt für Bakteriologie*, No. 6-7, p. 147, 1897.
[2] *Centralblatt für Bakteriologie*, No. 18-19, p. 660, 1899.

guished compatriot, Dr. D. E. Salmon, published in 1889 by the Government Printing Office in Washington and entitled "Hog Cholera, Its History, Nature, and Treatment." Had Drs. Reed and Carroll taken the time to do this they would have been at once convinced of the absolute impossibility of identifying two micro-organisms which are readily differentiated, even by the crudest methods, from every point of view morphological or biological.

It is sufficient to recall that the bacillus of Salmon forms on potato a luxurious brownish-colored culture somewhat like that of mauve, while my bacillus icteroides develops on potato completely without color and is scarcely visible; it is enough besides to remember that the toxin of the bacillus icteroides resists a temperature of even 100° C., while that of the bacillus of hog cholera undergoes modification as low as 60° C. and is entirely destroyed at 100° C. The two toxins exercise upon animals a pathogenic action entirely different, as is evident from the studies of Selander and Metchnikoff[1].

We may recall besides that colonies of the two forms of bacilli on gelatin plates are as readily differentiable even at first sight as it is possible for bacilli to be, and that in rabbits and guinea-pigs infection with the bacillus choleræ suis produces a large number of foci of coagulation necrosis (dirty whitish spots), which are absolutely specific for the micro-organism described by Salmon, while they are never noted in animals inoculated with the bacillus icteroides. In regard to this matter Reed and Carroll make the following observation: "The lesions produced in rabbits and guinea-pigs inoculated with bacillus icteroides and the hog-cholera bacillus are practically the same, the most constant change consisting of multiple necroses in the liver. Sanarelli does not appear to have made any mention of this most striking lesion."

I am very much surprised myself that Reed and Carroll should have found this lesion and should have betrayed seemingly good faith in describing it so carefully, without realizing that the lesion is entirely specific to hog cholera and limited to that affection and is completely unknown in infections with bacillus icteroides. I, myself, who certainly possess an extensive experience in the matter, having made thousands of autopsies on rabbits and guinea-pigs that had died from infection with bacillus icteroides, have never seen the necrotic patches of the liver they describe, and my experience is confirmed by many observers who have down to the present time repeated and controlled my experiments in so many different countries.

I have every reason to think, then, that Drs. Reed and Carroll have fallen victims to some deplorable neglect of technical precautions in the laboratory, and all the more am I compelled to think so because I gather from their experiments that the results observed after inoculations of the bacillus icteroides into other animals, by no means correspond with those described as occurring in the rabbit and guinea-pig.

As a matter of fact among other things Drs. Reed and Carroll did not succeed in reproducing the acute steatosis, fatty degeneration of the liver in dogs that was always so prominent a feature in my own observations, as well as those of Foa,[1] Belfanti and Zaoni,[2] De La Cerda,[3] Cesaris Demel,[4] Della Rovere,[5] Mendoza,[6] Ramos,[7] Bruschettini,[8] and others. This acute fatty degeneration of the liver is very characteristic and is produced much more rapidly and with much more intensity than fatty degeneration following phosphorus poisoning.

In the presence of hiatuses of observation and inexactness in detail in their experiments so great as these I find it impossible to give any serious consideration to the strange position taken by Drs. Reed and Carroll. It is evident that their conclusion has no other significance than that a gross and deplorable error was made in their laboratory and that somehow the cultures of the two micro-organisms being experimented with got mixed for want of sufficient attention.

The bizarre effect of the hypothesis that they advanced is enhanced by the startling consideration that Drs. Reed and Carroll announce as a convincing element in the analogy between the bacillus icteroides and the bacillus choleræ suis, that both of these micro-organisms resist extremely low temperatures very well. As if it were not well known that all bacteria without distinction are endowed with the faculty of resisting low temperatures, or as if any one had ever succeeded in finding for bacteria the limits beyond which they would not stand refrigeration and as if this quality of resistance to low temperatures were to be set down as one of the characteristics of bacteria by which they might be recognized!

But this discussion as to the resistance of the bacillus icteroides to cold is not new. It was inaugurated by another bacteriologist, Dr. Novy, who, in a long article made up to a greater degree of

[1] *Annals de l'Institut Pasteur*, 1890–92.

[1] *Giornale di Real Acad. di Medicina di Torino*, fasc. 2 and 3, 1898.
[2] *Ibidem*, fasc. 5–7, 1898.
[3] "Trabalhos do Dr. Sanarelli, Etiologia d'Febre Amarillo," Rio Janeiro, 1899.
[4] *Giorn. di Real Acad. di Med. di Torino*, fasc. 3, 1898.
[5] *Riforma Medica*, July, 1898.
[6] *Centralblatt für Bakteriol.*, No. 11, 1899.
[7] *Revista Sem. Bras. Medic.*, No. 29, 1898.
[8] *Gazzeta d. Ospedali*, No. 64, 1899.

critical and philosophical considerations than of clinical or anatomical or experimental observations has attempted to show indirectly that the bacillus icteroides *could* not be the cause of yellow fever.[1]

It seems worth the while for me to transcribe the last period of this article because it gives an opportunity to judge at once of the whole system of reasoning to which the author abandons himself with an aggressive spirit which it is very hard to explain.

"This last experiment (exposure to cold) may be considered as a crucial test of the relation of the Sanarelli bacillus to yellow fever. Freezing for three days at a temperature below — 10° C. had absolutely no effect on the virulence of this organism. As pointed out above, epidemics of yellow fever are promptly brought to an end by a sharp frost. In other words, the microbes of yellow fever are exceedingly sensitive to cold. This certainly cannot be said to be the case with the bacillus isolated by Sanarelli. This organism in its behavior to cold again shows that it is related to the colon-typhoid group of micro-organisms. If, therefore, the Sanarelli bacillus were the cause of yellow fever we would expect to find this disease like typhoid fever distributed over the length and breadth of the American continent regardless of climatic conditions."

Now in order to imagine seriously this strange supposition in actual experience requires a mind absolutely guiltless of even elementary knowledge of epidemiology, not only as regards yellow fever but also with regard to the other serious epidemic diseases, which have in general their ordinary foci of greatest activity and points of maximal development in warm countries.

Not only yellow fever, but all the endemic diseases (malaria, etc.) and the epidemic diseases (cholera, pest, typhoid fever, dysentery, and the like) diminish in virulence and often almost disappear with the advance of the cold. But this phenomenon has absolutely no relation to resistance of their respective specific microbic causes to cold. The reason for their diminution during the winter is simply that while exposed to persistent low temperatures all pathogenic microbes without exception cease to multiply. But their cessation of reduplication by no means signifies that they have lost their vitality or virulence, since the return of warmer weather is almost invariably accompanied by renewed outbreaks of the epidemics.

A very instructive example of this is furnished by Asiatic cholera, which is a striking type of a disease that practically always disappears with the first cold weather. In spite of this, however, the vibrio of cholera has been known to resist exposure for 120 days to the severest cold, the minimal temperature of which was 31.8° C., and that, too, despite the fact that it was allowed to thaw out several times[1]. The bacillus of pest (bubonic plague) also has resisted for more than 40 days a temperature of 20°[2]; the bacillus of typhoid fever was found alive even after 103 days of exposure to a temperature of 10°[3], etc., etc.

It is no great matter for wonder then if Dr. Novy found the bacillus icteroides neither dead nor lessened in virulence after but 3 days of exposure to the cold of his window-sill. How can he conclude, besides, from this extremely defective experiment, that the bacillus icteroides comports itself when subjected to cold like a number of the colon-typhoid group, especially as there can not be found in contemporary scientific literature any reliable data as to the limits of resistance of these microbes when exposed to low temperatures? The comportment of the colon and typhoid bacilli in the presence of cold is entirely unknown in bacteriology and there is not the slightest reason to think that it is any different from that of any other microbe.

Is it possible that Dr. Novy is not aware that during the old epidemics of yellow fever in Philadelphia and Baltimore, precisely during the months of November and December, while the temperature was at times below zero, more than 100 persons a week were being carried off by the disease?[4] Or can it be that Dr. Novy does not know of examples of vessels infected with yellow fever, in which the germ of the disease was not destroyed despite the fact that they had been frozen up in Arctic ice for months? Or can Dr. Novy mention a single specific pathogenic germ that is not capable of enduring low temperatures?

After that it seems to me superfluous to defend myself against the remainder of the article cited. For the greater part it is made up of a series, as long as it is useless, of elementary laboratory exercises, executed with the idea of demonstrating the morphological and cultural differences and analogies between the bacillus icteroides, the bacillus of typhoid and Havelberg's bacillus, the last of these as we learn from a note, being nothing else than the common colon bacillus.

After the detailed descriptions given by myself and many other well-known bacteriologists of the morphological characteristics of my bacillus icteroides and the directions for its bacteriological diagnosis, I think that Dr. Novy might well have spared himself the pains of devoting himself to a work so little

[1] MEDICAL NEWS, September 10 and 17, 1898.

[1] Kasinsky, *Centralbl. für Bakteriologie*, p. 184, 1895.
[2] Gladen, *ibidem*, p. 588, 1898.
[3] Prudden, *N. Y. Med. Record*, April and May, 1887.
[4] "Corre Traite des fievres des pays chauds," p. 446, Paris, 1883.

capable of supporting the thesis which he has chosen and seems resolved to maintain at any price. This thesis is naturally that of Dr. Sternberg, and consists in declaring *a priori*, that the bacillus icteroides possesses absolutely no etiological significance in yellow fever. It matters not that this declaration is unsupported by even the slightest clinical observation, that not a single autopsy is brought forward to substantiate it, and that it has not been deemed necessary to institute the numerous and carefully conducted experiments upon animals which are usually supposed to give weight to an opinion in bacteriology!

It is easy to understand, then, that in order to be able to write his criticism without having recourse to these experimental elements Dr. Novy has been compelled to adopt a system of *a priori* criticism that fortunately has been banished definitively from the domain of the biological sciences. I have presented a fair and eloquent example of his critical method, but I feel compelled to deplore the utter levity and the want of anything like even elementary competency for bacteriological criticism that characterizes the method Dr. Novy has employed in setting forth his objections to my discovery.

For example, he makes a great deal of the so-called laws of Koch, and insists that since I have not been able to isolate the bacillus icteroides in every case of yellow fever, that therefore, it cannot be the specific cause of the disease. He fails entirely to take account of the fact that I explained at length the reasons for these defective results in my original work and that I have considered them from the beginning as not final. I have I think demonstrated that this partial failure was due to exceptional circumstances in the investigation.

As a matter of fact I hope that by this time Dr. Novy has changed his opinion in this regard, for he must know that Drs. Archinard and Woodson[1] working in New Orleans, have succeeded in isolating the bacillus icteroides in more than 80 per cent. of their cases of yellow fever and he is surely aware that Dr. Geddings isolated it in 79 cases, 93 per cent. of those he had under observation. The official commission sent by the President of the United States to study yellow fever after long studies of the disease in Louisiana, Mississippi, and Cuba report[2] that they were able to isolate the bacillus icteroides in practically every case, while they never found it in an individual who had died from any other cause than yellow fever.

Dr. Novy criticizes the results of my experiments on dogs, but he adduces no experiments of his own to sustain his critical statements. He really shows a very complete ignorance of the present scientific literature of yellow fever, for it would require but a very superficial reading of the literature of the subject to know that the infectious and toxic symptoms and lesions produced by the bacillus icteroides and its toxins, reproduce all the specific marks of yellow fever in the human being. They especially produce that profound and characteristic fatty degeneration of the liver which experimentally we are not always able to produce even by phosphorus poisoning. It is even worse than the hepatic steatosis that follows phosphorus and it is absolutely characteristic of yellow fever.

Dr. Novy without further ado denies the absolute specificity of this fatty degeneration of the liver and asserts gratuitously that it may be produced by other microbes. He brings forward, however, no experimental observations to support this position and seems to be ignorant of the fact that I have published a series of comparative researches on this subject of the production of fatty degeneration in animals as effected by various pathogenic microbes. My method consisted in an accurate determination by means of chemical analysis of the amount of fatty substances to be found in the viscera of various animals after infection. I succeeded in demonstrating that the bacillus icteroides is far and away ahead of all other pathogenic micro-organisms in producing steatosis in the animal organism[1].

Dr. Novy demonstrates further and successfully that the toxins produced by the bacillus icteroides are not as powerful as those formed by the bacillus of tetanus or diphtheria. I have never even distantly hinted, however, that they were and if my eminent critic wishes to make it understood thereby that because of its lesser toxicity my bacillus cannot be accepted as the cause of yellow fever, then I must say that he holds an opinion entirely personal and peculiar to himself with regard to the pathology of the infectious diseases in general.

According to his way of looking at it there should be but two microbes capable of killing the animal organism by means of their soluble toxins, namely, those of diphtheria and tetanus! Are not typhoid fever, cholera, pneumonia, streptococcemia, tuberculosis, etc., also infective diseases characterized by the presence of a powerful, soluble poison elaborated

[1] *New York Medical Journal*, January, 1898.
[2] "Public Health Reports," No. 45, 1898.

[1] Average quantity of fatty substances contained in the liver of animals: (Average results of a number of analyses.) Normal dogs (as controls) 6.54 per cent. of the dried residue. Dogs after infection with the cholera vibrio 9.44 per cent. of dried residue. Dogs after infection with colon bacillus 10.60 per cent. dried residue. Dogs after infection with bacillus pyocyanicus 11.22 per cent. dried residue. Dogs after infection with diphtheria 14.65 per cent. dried residue. Dogs after infection with bacillus icteroides, 22.69 per cent. dried residue.—*Centralbl. für Bakteriologie*, No. 10, p. 382, 1898.

in their respective specific germs, even though their toxins may not be as rapidly fatal as those of diphtheria and tetanus?

If Dr. Novy desires, however, to have a more exact notion of the toxic powers of the bacillus icteroides, I should advise him to read an excellent article on the subject, the result of actual experiments by Belfante and Zanani[1] in which he will find an amount of interesting material that will supply certain defects in his present information on the subject.

After this I shall occupy myself only briefly with a most original declaration by Dr. Novy, who asserts that "from the above it is evident that Sanarelli's bacillus produces in experimental animals a disease not unlike that following infection with the bacillus coli communis."[2] This is equivalent to impugning either the good faith or the good judgment not only of myself, but of a now numerous following of distinguished bacteriologists who have announced their belief that we have in the bacillus icteroides a pathogenic microbe distinct from the external colon bacillus, which constitutes the great coefficient of ordinary errors in bacteriology and is without doubt the greatest crux of bacteriological investigations, whenever intestinal contents enter, however remotely, into the subject to be studied.

Now it was precisely because of this and to make the matter clear to inexpert or impractical bacteriologists, that I take the trouble to insist at such length on the fundamental characteristics which differentiate beyond peradventure of error the bacillus coli communis from the bacillus icteroides.

The last part of Dr. Novy's article is taken up with the subject of vaccination, and with the agglutinative power of various serums. But even here there is a lamentable confusion of opinions and of experiments which results in an incomprehensible muddle. For example, the author did not succeed in obtaining a serum with sufficiently high preventive powers from a horse that he thought he had vaccinated thoroughly after five months of injections. Annoyed by this failure he proceeds to cry out without more ado that the bacillus icteroides is not capable of producing a soluble toxin.

It is evident that he is not aware of the investigations on this subject[3] published by one of our most eminent experimenters,[4] and in which he demonstrated beyond all doubt the antitoxic value and the preventive and curative powers of a serum obtained from horses properly vaccinated. The serums are effective against the bacillus icteroides and its toxins.

[1] *Giornale di Real Academia di Torino*, No. 5-7, 1898.
[2] MEDICAL NEWS, *loc. cit*, p. 367.
[3] MEDICAL NEWS, *loc. cit.*, p. 365.
[4] Foa, *Giorn. di R. Acad. di Med. di Torino*, No. 4, 1898.

Finally, Dr. Novy experimented with the bacillus icteroides and serums derived from horses that had been vaccinated against pest and against the colon and tetanus bacilli. He found that all of these serums indiscriminately caused agglutination to occur in cultures of the bacillus icteroides and concluded from this with what we may call, I think under the circumstances, his habitual unreflecting precipitancy, that therefore this phenomenon was of absolutely no importance as regards the demonstration of specificity.

But it is evident that Dr. Novy has been deceived once more in this for want of taking proper account of the dilution of his serums, for it is well known that these researches in agglutination have no value unless they are practised comparatively and with dilutions of serum always at least 1–40.

I consider it scarcely worth the while at this late day to call Dr. Novy's attention to the results obtained after long and serious investigation of the subject of the serum diagnosis of yellow fever in New Orleans, by P. E. Orchinard, R. S. Woodson, J. Archinard,[1] and O. L. Pothier.[2] They demonstrated indisputably that the serum of yellow-fever patients, of convalescents from the disease, and of those fully recovered, was endowed with an agglutinative power entirely specific for the bacillus icteroides, which was not noted in the case of other bacilli if the dilution was sufficient.

The last of this long series of inexactitudes is especially laughable. Dr. Novy declares that the negative bacteriological investigations, together with the facts observed during epidemics of yellow fever, justify the conclusion that the specific microbic cause of the disease, like those of smallpox, measles, hydrophobia, etc., belongs to a group of micro-organisms that are invisible to the microscope!

I find this a very convenient way of looking at the subject especially for such as Dr. Novy, who have neither the time nor the wish to undertake the voyage to Cuba in order to see a yellow-fever patient or two, or to make a few, or at least some modest bacteriological investigations in the home of the disease. I cannot admit, however, that the science of epidemiology gains much from this method of argumentation borrowed from metaphysical sources.

On the contrary, the ready propagation of the disease, the exceptional longevity of its pathogenic agent whatever it may be, its rapid acclimatization in localities that cannot at first offer it an especially suitable means of nutrition, its resistance to desiccation and various other considerations which can be gathered without difficulty from the known epidem-

[1] *New York Medical Journal*, January 28, 1899.
[2] *The Jour. of the Amer. Med. Association*, April, 1898.

iology of the disease might easily have led one to believe that even before my discovery the specific cause of yellow fever, whatever might be its nature, was not very different from the ordinary type of pathogenic microbes that are known, since its habits and manner of life are regulated by the same conditions, ruled by the same laws. As a consequence its isolation in pure culture promised with the varied nutritive materials that we have at our command now to be only a question of time, of of ability, especially of sufficient preparation and of tenacious persistence.

My preceding and rather well-known researches on the etiology and pathogenesis of typhoid fever[1] of cholera,[2] to which I devoted a good deal of not unfruitful time and labor, put me in the position certainly of having sufficient preparation even for the difficult bacteriological problem presented by yellow fever.

My pathogenetic criteria had been developed especially by the work on typhoid fever[3] and this contributed not a little to orient me at once even as to the probable mechanism of the infection by yellow fever. It pointed out very happily the direct path that had to be followed in order to demonstrate the so-much-sought-for specific microbe of that dread disease.

I am inclined to doubt if those who find it so easy to criticise are in a position to treat the bacteriological and pathogenetic questions of the infectious diseases with as much experience and authority, for these can only be acquired after many years of practical study at the bedside of the sick, in the autopsy-room and in the laboratory of comparative experimental pathology.

TUBERCULOSIS OF THE KIDNEY AS AN INDICATION FOR NEPHRECTOMY.[4]

BY EDWARD REYNOLDS, M.D.,
OF BOSTON, MASS.

MY text in this short paper is that tuberculosis of the kidney is not always the hopeless and destructive bilateral complication of other tuberculoses, which some observers still believe that it almost invariably is, but that some recent experiences of my own have led me to believe that it is not infrequently unilateral, and primary in that one kidney, and that in such cases its clinical course is widely different from that usually ascribed to it. I believe that when it is bilateral, or even when it occurs as a unilateral disease in broken down or profoundly tuberculous constitutions, it is a rapid and hopeless affection and that such cases are unfit for surgical treatment, but that when it is primary and unilateral and occurs in fairly resistant women it is a slow and insidious disease, which is not infrequent in the community, which is often characterized during many years by but trifling symptoms and is then readily curable, but is usually unrecognized until after it has become incurable. I believe, in short, that in some instances, this disease is today fulfiling the rôle, which was so long enacted by chronic appendicitis and tubal pregnancy, and that with further study it will yield us another and wide extension of our usefulness. I believe that success in the operative treatment of this affection rests upon the selection of cases; upon the selection for operation of those patients who remain for years in good general condition; in whom the disease is slow and chronic and, therefore, unfortunately, obscure and easily overlooked; but the main object of my paper is to urge upon all the mere fact of its existence. In support of this view I wish to bring before you not theoretical considerations, but the somewhat suggestive details of the cases which I have myself observed, together with a few words as to the methods of diagnosis and treatment which I have found useful.

The first point which strikes me as of interest in my cases is that all the patients were brought to me by their physicians for the relief of urinary discomforts, and as afflicted with moderate debility, but not in any instance for the cure of an important disease, the symptoms in all cases consisting of a rather deteriorated condition of health, and habitual, though sometimes transient, attacks of urinary discomfort. The second is that three out of four of the patients had tuberculous family histories. The third, and one of the most striking features, is the long duration of the illness in some of the patients before it was brought to the notice of a specialist, the patient whose kidney was least advanced in the disease having a history of eight-years' duration, while another whose kidney showed only the presence of two small abscesses of the size of a pigeon's egg had a history of twenty years of suffering. Two patients had suffered from repeated attacks of somewhat profuse hematuria; none of the others showed any symptoms which could be differentiated by the study of the history from those of an inflammatory affection of one kidney.

Briefly, the history of all except the hematuric cases, consists only of long-continued debility, with frequency and discomfort in micturition, and sometimes pain and tenderness referable to one kidney or

[1] *Annals de l'Institut Pasteur*, 1892 and 1894.
[2] *Ibidem*, 1894 and 1895.
[3] Consult Brouardel, "Traite de Medicine," p. 791; Duflocz, "Leçons sur les Bacteries Pathogenes," p. 340, etc., 1897; "Rho. Malattie de pæsi caldi é temperati," p. 425, 1897; Macé, "Traite pratique de bacteriologie," p. 683, etc., 1897; Kocher and Zavel, "Vorlesungan über chirurg. Infectiouskrankeiten," etc., 1898.
[4] Read at the twenty-fourth annual meeting of the American Gynecological Society, held at Philadelphia, May 23, 24, and 25, 1899.

ureter. Curiously enough the pain and tenderness, in this as in many other unilateral renal affections, is not infrequently referred to the sound side, where it may even be intense. One patient had a history which rendered the existence of previous but transitory pulmonary tuberculosis likely.

The diagnostic lesson which I have learned not only from these cases, but from a considerably larger experience with other affections of the urinary organs is that the most which we can gather from a history which consists only of long-continued debility and urinary symptoms, is that in such cases the debility is usually though not always the product of the urinary disease; that the nature of the urinary difficulty can only be determined by a physical examination of the urinary organs; and, finally, that the physical signs of even somewhat advanced urinary tuberculosis may be at times, and especially in its quiescent periods, so slight that the disease will be missed by any but inoculation tests. I am not sure that it may not sometimes be missed at such periods even by these delicate reactions, although out of a considerable number of negative inoculations I have so far had none in which the subsequent operation or course of the disease failed to show the patient to be clear of tuberculosis.

The methods which I use are careful palpation over both kidneys and the course of both ureters including their vesical ends; a visual inspection of the bladder; in the absence of definite lesions of this viscus, a catheterization of the ureters, and the submission of the separated urines not only to a microscopical examination by an expert, including a careful search of stained specimens for the tubercle bacillus, but also to the injection of a portion of each sediment into a separate guinea-pig. The importance of adding the last method of examination to our tests is, I think, shown especially well in the fourth case on my list, in which repeated examinations for tubercle bacilli by Dr. J. B. Ogden of the Urinary Laboratory of the Harvard Medical School, failed to show their presence, though made while the bladder was the seat of ulceration, and although the guinea-pig inoculated with the urine of the affected kidney promptly became infected with the disease, while a pathological examination of the specimen after nephrectomy showed the presence of two tubercular abscesses, which communicated with the pelvis of the kidney. In the absence of hematuria the microscopic examination of the urinary sediments of the divided urines may even fail to show any disease, especially on a single examination only; since a sediment which at one time contains a large amount of pus, may at other times (and probably for long periods) show only scattered leucocytes and but little else of significance, yet in my second case an inoculation was positive in just such a urine and the kidney was found to be tuberculous.

As regards treatment, I have subjected the three patients upon whom I have already operated to simple nephrectomy, on the ground that even if there were a tubercular infection of the portion of the ureter which was left behind it would surely disappear under the retrograding processes which a ureter necessarily goes through after its kidney has been removed, and in the two cases in which eleven and eighteen months have already elapsed since the operation, the restoration of the patients to continued and perfect health has shown the justice of this view, while the rapid improvement of the third in the short time which has elapsed since the operation makes a similar result seem probable, but the persistence in one of these cases, and in several other of my nephrectomies, of considerable urinary suffering during the convalescence, which I have attributed to the distention of the stump of the ureter by retained secretions, with the appearance in one case, late in the convalescence, of suppuration which seemed attributable to infection from the stump of the ureter, together with the fact that in a case which I saw in consultation after nephrectomy had been performed, it was necessary to remove the ureter for continued suppuration, have led me to propose for the future to treat such cases by nephro-ureterectomy. The rapid and complete restoration of health, with gain of weight and healthy color, which these patients have exhibited after operation, together with the easy vicarious assumption of the whole function of elimination by the remaining kidney have made me feel that nephrectomy is a wholly justifiable operation for proper cases of unilateral tuberculosis of the kidney; and I may add my belief that the enormous mortality which has in the past attended this operation has been due in part to imperfect diagnosis and selection of cases, and in part to the fact that it has usually been reserved for a last resort, in cases which are already in a condition which renders any surgical operation unpromising. I believe that if it is applied to women who are in fair condition, its mortality will be very small; to say nothing of the fact that we may fairly believe that the improved technic which always follows the frequent performance of an operation will probably in time reduce the mortality of this operation as it has that of hysterectomy.

Two of my cases have already been reported in detail; the others will be as soon as a sufficient time has elapsed since the operations, but a few particulars of them may properly be included here.

The first patient, Mrs. R., seen with Dr. Hedenberg of Medford, Mass., had been subject to attacks of

urinary frequency for five years. She had had some pain and tenderness over the course of the left ureter for about one year, and though not confined to her room except at the time of her attacks had been in poor general health during the whole five years. At the time I first saw her, her urine had for some weeks contained considerable quantities of pus, and she had been urinating about every twenty minutes through the daytime and some five times at night. Her bladder was the seat of general inflammation, there was marked redness and erosion about the left ureteral orifice, and several polypi, apparently secondary, about the internal orifice of the urethra. Local treatment of the bladder entirely relieved her symptoms within a few weeks and disposed of all the vesical lesions except the erosions about the left ureter, tne vesical end of which was enlarged and hardened to the touch, but this relief was not permanent, in fact comfort was only maintained by almost continuous treatment of the bladder, and her general health was manifestly running down.

An incision down to the left kidney December 3, 1897, showed it to be much smaller than normal and on removal it was found to consist of but little more than a shell filled with cheesy pus. On section its tissues were found to be full of tubercle bacilli, though a previous examination of the urine at a time when it was full of pus had failed to detect them. No inoculation test was made. During the year which followed the operation the patient enjoyed perfect urinary comfort, gained greatly in strength, color, and general health, and has remained a wholly well woman ever since (about 18 months). The case was reported in the *St. Paul Medical Journal*, May, 1899.

The second patient, seen with Dr. P. C. Proctor of Gloucester, Mass., had a tubercular family history but had had no such trouble herself. She had been a semi-invalid for eight years, her illness dating from an unexplained attack of hematuria. She had had one other similar attack five years later, and I saw her during the third, which lasted for some weeks and was profuse enough to blanche her severely. Her only other symptoms were slight frequency during the hemorrhages and some backache and bearing down during the intervals, but none in the attacks. Her bladder was normal, but blood was oozing from the right ureteral orifice. A search of the ureteral sediment for tubercle bacilli conducted by Dr. Ogden was negative, and in fact the sediment contained practically nothing but the blood, but a guinea-pig inoculated with the sediment of the right kidney developed tuberculosis, while one inoculated from the left side remained well. I removed the kidney on June 24, 1898. All the symptoms were at once relieved, the patient considered herself in perfect health at the end of three months, and has remained so ever since, having regained her normal weight, color, and strength. The pelvis of the kidney contained numerous scattered miliary tubercles. The case was reported in the *Johns Hopkins Hospital Bulletin* for November, 1899.

The third patient was seen with Dr. Edgar Garceau of Roxbury, Mass., after he had performed a nephrectomy. Both family and personal history were clear. The duration of her symptoms before the operation was about one year. She had had pain and tenderness over the situations of the left ureter and kidney, some pain on the left side when lying in bed and pain referred to the neck of the bladder. She had passed urine about forty times during twenty-four hours. There had been no hematuria. There were ulcerations in her bladder which Dr. Garceau had curetted before performing nephrectomy. The diagnosis and indication for operation were founded on an increased size of the kidney on palpation, and on the tubercular appearance of the bladder. An examination of the kidney after its removal showed it to be tubercular. At the time I saw her she was very feeble and greatly emaciated. She had an irregularly elevated temperature, which was apparently due to suppuration about the portion of the ureter which had been left. I thought her too weak for much prospect of success from ureterectomy, but Dr. Garceau courageously removed the ureter, and the patient made a surprisingly uneventful return to entire health and resumption of her work, which condition she maintained for nearly a year, or until a few weeks ago, when some urinary frequency reappeared, and Dr. Garceau informs me that she now has a few ulcerations of the bladder which, however, he hopes to cure by local treatment. This, as is readily seen, was a very unfavorable case, and was moreover, in very unfavorable hygienic surroundings. She has, nevertheless, received much benefit and may yet be cured, as the recurrence of the disease is thought to be limited to the bladder, and I have already had two cases of primary tubercular disease of the bladder in which healing occurred after local cauterization, and both patients have remained well, one for more than a year, and the other for more than three years. This operation was undertaken, however, without bacteriological proof of the soundness of the other kidney, and should therefore, I think, be considered as in a little different class from the other cases reported.

My fourth patient was seen with Dr. A. A. McDonald of Roxbury. Her family history was tuberculous, her personal history good. She had suffered for twenty years with urinary discomforts which

grew worse at intervals but were never wholly absent. For four years she had been subject to acute pain over the left ureter and kidney, and occasional though not very severe left-sided renal colic. At the time I saw her there was no tenderness on either side and neither ureter could be felt on palpation per vaginam. She was then urinating from forty-five to fifty times each night and almost incessantly through the day. Her bladder was studded with tubercular ulcers. I considered the case wholly beyond the reach of radical treatment, but advised Dr. McDonald that I thought he might greatly lessen her suffering by cauterizing the vesical ulcerations with solid nitrate of silver warning him, however, that this would be a very tedious task, and that I was very skeptical of his even reducing the bladder to a normal condition. A guinea-pig inoculated with her bladder urine promptly developed tuberculosis, and I was greatly surprised when the doctor brought her back to me, after three months of most patient and almost continuous treatment, with an entirely normal bladder. On palpation I now found the vesical end of her right ureter to be thickened (it is to be noted that all the symptoms were upon the left side). I then catheterized her ureters and submitted the specimens to Dr. Ogden. No tubercle bacilli were found, but the guinea-pig inoculated from the right side developed the disease, while its fellow inoculated from the left side remained well. The urine from the left side appeared normal with the exception of the fact that it contained a good deal of stringy mucus. This probably accounted for the occasional renal colics, but the appearance of even this slight abnormality on the sound side made me feel very unwilling to operate, and I refused to do so until repeated catheterization of the ureters had yielded uniformly the same results. Then, in view of the facts that there was undoubtedly tuberculous disease in the right kidney, that the physiological action of the left was good, that the woman had gained considerably in health and strength in the four months during which she had waited for the inoculation and other tests, and that the bladder still remained normal, I consented to a nephrectomy on the right side. This was performed on March 8, 1899, and it is too soon to report the result, but it is a striking fact that the left-sided pain was gone when she came out from the influence of ether, and never recurred, and that the urinary frequency is gone, and that she has already gained in general condition. The kidney contained two small tubercular abscesses. In two other cases the diagnosis, though probable, is not yet fully established by the inoculation test and I therefore prefer not to report them.

RETENTION OF THE TESTICLES, WITH REPORT OF CASES.[1]

BY L. L. HILL, M.D.,
OF MONTGOMERY, ALABAMA.

IT is essential to a thorough understanding of an abnormality that we have a clear comprehension of the normal. This is especially applicable to the subject which I now propose to consider. Anatomists tell us that the testicles in early fetal life are located behind the peritoneum and below the kidneys. About the third month a slender band of unstriped muscular fibers, the gubernaculum testis, is observed, which eventually, in the marvelous process of development, connects the testicle with the bottom of the scrotum. As the fetus elongates the gubernaculum not only does not commensurately lengthen but progressively shortens, necessarily causing descent of the organ into the scrotum. The testicles are found in the scrotum at birth in eighty per cent. of all cases. Of the retarded twenty per cent. only one in a thousand finds permanent lodgment in the inguinal canal or abdomen. Professor Keyes reports descents as late as the thirtieth year. Less frequently they stray from the usual path and may be found in the perineum, the most common form of ectopy in man, and the natural position in some of the lower animals, as the pig. Having passed through the femoral ring they reach the thigh, or there may be penopubic ectopy. Those which descend after birth are usually complicated with hernia and when permanently retained are often given to structural degeneration.

The cryptorchid is generally copulative but sterile, losing his spermatogenesis but none of the other attributes of masculinity, the sterility being determined in a given case only by a microscopic examination. Statistics show that the right testicle oftener fails to descend than the left. The chief accredited cause of abdominal retention is intra-uterine peritonitis. Non-descent may be due to the wearing of a truss or to shortness of the cord. An unusually small external abdominal ring may produce lodgment in the canal. Excessive development of certain fibers of the gubernaculum is responsible for aberrancy.

Having thus briefly considered in a general way some of the features of this interesting subject, I will report three cases that have come under my observation, with the treatment that was adopted.

CASE I.—E. B., aged twenty-four years, white, a clerk in a railroad office, applied to me in December, 1895, presenting an enlargement in the right inguinal region which he said had existed since his birth. He complained of an uneasy and disagreeable sensation which was accentuated when the

[1] Read before the Medical Association of the State of Alabama, at Mobile, April 20, 1899.

bowels became constipated and distended with gas. The pain rendered him incapable of properly attending to his duties.

Upon examination I found an undeveloped scrotum and a retained testicle in the inguinal canal complicated with an irreducible bubonocele with which it was inseparably connected. Hernia is one of the most frequent complications of this form of undescended testicle and particularly dangerous on account of proneness to strangulation. Trusses, recommended with large concave pads to prevent an increase of the hernia and protect the testicles, are in the main unsatisfactory. I accordingly advised an operation for the radical cure of hernia and if possible transplantation of the testicle in the scrotum, and if the latter was not found feasible, then a castration. To the partial emasculation he strenuously objected, which from the appearance of the testicle was more a matter of sentiment than anything else. Contrary to my better judgment I yielded to his entreaties and promised not to sacrifice the testicle in case the scrotal transplantation failed, but to try to relieve him of his pain by a conversion of his retentio inguinalis into a retentio iliaca, and absolve him from the jeopardy of a strangulated hernia by radical operation, as much as possible after the method of Bassini. Owing to the shortness of the cord and my inability to carry the testicle to the scrotum even after I had thoroughly divided the musculofibrous funicular sheath it became necessary to do this. I considered the advisability of dissecting the globus major from the testicle and turning the organ upside down, an operation I had seen Mr. John Wood do some years before in London but concluded even this additional lengthening would not carry it to its habitat.

More than three years have elapsed since the operation and the patient has attended daily to his duties and has suffered no inconvenience. Had I seen this patient early in life, when the hernia was probably reducible, I should have used the horseshoe contrivance of Wood and attempted to push the testicle into the scrotum and at the same time restrict the hernia to the abdominal cavity. There are excellent surgeons who, when it is possible, return both hernia and testicle to the peritoneal cavity and apply a truss to keep them there if they are inseparable.

CASE II.—E. C., aged twenty-five years, white, consulted me in February, 1896, on account of the absence of the testicles from the sac. I found both testicles retained in the inguinal canals. They seemed to be about one-half their normal size. It was impossible to push them through the external rings. The scrotum was undeveloped and measured transversely only half an inch. Aside from his desire for relief purely on grounds of adornment and development, their exposed position subjected them to frequent traumatism.

I advised an operation, to which he readily consented. Making an incision sufficiently long to well expose the testicle, I applied downward traction to the organ and divided the tissues of the cord transversely, barring the vas, vessels, and nerves. Passing my finger into the lower end of the wound I forced an opening into the scrotum for the retention of the belated testicle. Invaginating the sac, I sewed the testicle to its bottom with catgut. The aponeurosis of the external oblique was next closed with catgut and the external ring was left large enough not to interfere with the circulation of the spermatic vessels. The cord was sutured to the pillars of the external ring and the wound in the skin closed. In dressing the wound I used a compress of antiseptic gauze to aid in keeping the testicle in its correct position. Waiting until the wound had completely healed I repeated the operation on the right side. Since the transplantation the testicles and scrotum have developed to their natural size, and were it not for the scars a former abnormality would not be suspected. In cases of double retention like this only one side should be operated on at a time as I am satisfied the rudimentary scrotum could not have safely held both testes.

CASE III.—F. C., about six years of age, son of a physician, was brought to me by his father for the relief of an undescended testicle on the right side. He was very anemic. The father stated that the testicle frequently became enlarged, and very painful and tender to the touch. Sometimes he could get a history of injury, but often he supposed it to be due to the contraction of the abdominal muscles. The child was an epileptic, the seizures coming on whenever there was any disturbance of the testicle and at no other time, and their frequency and severity were proportionate to the amount of irritation. I gave as my opinion that it was a case of reflex epilepsy and that the testicle should be released from its incarceration, preferably by anchoring it in the scrotum but if need be by extirpation. I performed the operation just as in the previous case and had the satisfaction a short time ago of receiving a letter from the father, a very intelligent physician, in which he said that the boy was in good health and that "there had been no return of the nervous symptoms from which he suffered previous to the operation."

There are two features of special interest in this case, the first being that it was a genuine case of reflex epilepsy as shown by immediate cessation of seizures after the operation. The second is that there was a sudden rise of temperature to 106° F., within twelve hours after the operation, at which point it remained for three days with slight variation, and then gradually declined to normal. The wound healed without suppuration. I do not believe the rise of temperature was a so-called post-operative rise, but was incident to an excitation of the thermogenic centers from the source of irritation, the impressionable impulse being transmitted through the sensory nerves.

Professor J. William White of Philadelphia advises the performance of these operations before the age of puberty. His opinion is entitled to serious consideration. To this distinguished surgeon is due

great credit for having elucidated and popularized the means of relief.

THE CHOICE OF DRUGS TO DILATE THE PUPIL.

BY EDWARD JACKSON, M.D.,
OF DENVER, COL.

THE influence of certain drugs in producing dilatation of the pupil is so striking and so characteristic that they are mostly grouped under the name mydriatics. The most of these resemble each other closely in all their physiological actions and therapeutic capabilities. Yet several of them differ sufficiently in their influence to render the one or the other distinctly superior in certain cases; and one drug, cocain, differs from the others so completely as to place it quite outside the group of true mydriatics, although it possesses a power of dilating the pupil that is of the highest practical value. Along with their power of producing dilatation of the pupil, mydriasis, these drugs all possess in varying degree the equally useful power of causing paralysis of the ciliary muscle, cycloplegia. In this paper their action as cycloplegics will not be referred to except as cycloplegia may be a valuable adjunct or a distinct disadvantage in their use as dilators of the pupil.

As the basis for choosing the particular drug most appropriate for a particular case, we have their somewhat different physiological actions on the pupil. Ten or twelve minutes after a drop of a solution of atropin, 1 to 120 (4 grains to the ounce), is placed in the conjunctival sac the pupil begins to dilate. The dilatation increases rapidly; the pupil at first reacts well to light, but is less and less affected by illumination as it grows larger. In fifteen or twenty minutes after it begins to dilate the maximum size of the pupil that can be produced by atropin is reached, and it becomes quite fixed, failing to respond to any of the forms of stimulation that produce reactions in the normal pupil. For about two days this condition remains unchanged. Then the pupil very slowly becomes smaller, and at the same time its reactions gradually return, until at ten or fifteen days after the application of the drug it has again become normal. Repeated instillations of such solutions prolong to any desired extent the period of complete dilatation, and recovery may be slower. I have seen three full weeks elapse between the last instillation and complete recovery.

Reference is here made to complete recovery, the period of which can only be accurately determined when the drug is used in but one eye, the other being kept normal as a standard of comparison. Often in six or eight days recovery may be so far advanced that no great inconvenience is experienced from the remaining dilatation, and after that the recovery is so very gradual, that some patients still think it not complete long after every trace of the action of the drug has passed away.

Dilatation of the pupil by atropin is accompanied by paralysis of the ciliary muscle, and suspension of the power of accommodation. This begins with dilatation, reaches the maximum in one or two hours, remains complete for about two days, and then slowly passes off as the pupil contracts. With smaller doses of atropin the period of complete dilatation is shortened. A drop of a solution of 1 to 2000 does not produce complete dilatation and fixity of the pupil; and the return to normal will occur in eight or ten days. Of a solution of 1 to 500,000 a single small drop, containing less than one-millionth of a grain of atropin, will produce a perceptible enlargement of the pupil lasting from thirty-six to forty-eight hours.

The actions of the other natural mydriatic alkaloids, daturin, duboisin, and scopolamin are almost identical, and closely resemble that of atropin. They are 2 or 2½ times as strong as atropin, so that used in solution of ½ or ¾ the strength they produce an equal effect. Recovery from their effects does not require so long as recovery from the effects of atropin. After complete dilatation by one of these drugs the pupil will return to normal in eight or ten days. They also cause complete paralysis of accommodation.

The artificial alkaloid homatropin differs essentially from any of the above in being much weaker in action, and in having a shorter period of recovery. A solution of 1 to 50 is required to produce complete dilatation and fixity of the pupil, and a single instillation of this does not produce complete paralysis of accommodation. Recovery is generally complete in two or three days. I have seen it complete in twenty-four hours, but in one reported case the period of its influence lasted longer than five days. Euphthalmin, an artificial alkaloid recently brought forward, is weaker than homatropin, and gives slightly greater dilatation of the pupils as compared with the diminution of accommodation that it produces. One instillation of a solution of 1 to 20 produces almost maximum dilatation, but not fixity of the pupil, and recovery is complete in about twenty-four hours.

In contrast with all the above is the action of cocain. It never produces fixity of the pupil. After repeated instillations of strong solutions the pupil continues to contract on exposure to strong light, and with convergence, yet even a single instillation of a solution of moderate strength will cause with feeble illumination a wider dilatation of

the pupil than can be obtained by any application of atropin, or the stronger mydriatics. Dilatation produced by cocain passes away in about twelve hours, and its effect on the accommodation is very slight. The superiority of cocain is most marked in elderly persons, in whom the other mydriatics produce only imperfect dilatation of the pupil. The influence of cocain is well shown by its effect in enlarging the pupil, when fully dilated by one of the stronger mydriatics.

Bearing in mind the special characteristics of the different mydriatics, let us consider which will best meet the needs of each particular condition, in which the use of a mydriatic is indicated. To dilate the pupil for ophthalmoscopic examination the indication is to dilate it quickly and widely in the dark room for as short a time as possible and to cause the least inconvenience and impairment of vision afterward. This is particularly the case when there is reason to suspect some progressive lesion causing the impairment of central vision, as albuminuric retinitis, or retrobulbar neuritis with central scotoma. It has repeatedly happened to me to meet a patient suffering from one of these diseases in whom for purposes of examination the pupil has been dilated by one of the slower mydriatics. The mydriatic caused immediate impairment of vision, and by the time the mydriatic influence had imperceptibly passed away the original disease had caused an impairment of vision which replaced that produced by the drug. It has usually been impossible to convince such a patient that his eyes have not been permanently damaged by the drops that were put in them. On the other hand, a mydriatic like cocain or a mixture of cocain and homatropin, causes comparatively little interference with vision at any time, and its effect passes off so rapidly that the patient realizes that he has recovered from it before the more permanent loss of vision by disease has progressed so far as to be noticeable.

Then, too, the risk of causing an outbreak of glaucoma by the use of a mydriatic must be considered in every case in which there is impairment of vision and difficulty in making an ophthalmoscopic examination. The liability to glaucoma is not confined to any one period of life. It is greater after middle age, but the disease may arise during childhood. From much that is written on the subject one might think that a mydriatic could not cause or aggravate glaucoma in any case until the patient was forty to forty-five years old; and that then every eye became liable to a glaucomatous outbreak from the use of a mydriatic. As a matter of fact no use of mydriatics at any time of life can produce glaucoma in one eye in five hundred; it is only a glaucomatous eye that the mydriatic can so affect. But of the two cases in which I have seen a glaucomatous attack thus produced one was that of a woman only twenty-five years old. Frank Fisher reports a case in which atropin provoked an attack in a girl twelve years old. J. B. Story reports cases occurring at thirteen and eighteen years. S. C. Ayres reports a case in a girl of sixteen and cites eighteen other cases of glaucoma occurring under the age of twenty.

When, on any account, there is reason to suspect glaucoma, the only mydriatic free from liability to produce an attack is cocain. Every new mydriatic has been brought forward with a claim that it was less likely to cause glaucoma than its predecessors, but when given a sufficient trial the claim has in each case been proven false. The only exception has been when the dilatation of the pupil it produced did not last long enough to establish a condition of high tension. The mydriatics cause glaucoma by thickening of the iris periphery, when the whole substance of the iris is gathered into a ring in the region of its ciliary attachment.

All mydriatics which act by paralyzing the sphincter of the pupil produce such a thickening of the iris periphery, with liability to cause blocking of the filtration angle of the anterior chamber and increase intra-ocular tension. Cocain, on the other hand, causes dilatation of the pupil chiefly or wholly through shrinkage of the iris mass by contraction of its vessels, and therefore it has little or no tendency to cause blocking of the filtration angle and a glaucomatous attack. Free applications of it often reduce very markedly the tension of the normal eyeball; and it is of practical value in connection with myotics in reducing the intra-ocular tension during an attack of acute glaucoma.

The diagnosis of glaucoma by the production of an acute attack may be justifiable in some doubtful cases after proper explanations have been made to the patient. For this purpose homatropin is to be used. If it produces an attack the dilatation of the pupil it causes and the consequent increase of intra-ocular tension can be cut short by the use of eserin.

Dilatation of the pupil for accurate measurement of refraction may be needful in old persons with small pupils, quite apart from any need of paralyzing the ciliary muscle. In the trial with lenses the stenopeic effect of the small pupil may be such that the patient will find it very difficult or impossible to choose between different lenses held before the eye. I have seen a patient whose emmetropic eyes were quite devoid of accommodation read thirteen-inch type at from ten to thirteen inches simply because the smallness of his pupils prevented blurring from

imperfect focussing. In such a patient it is quite impossible to make any accurate determination with trial lenses without dilating the pupil. If the pupil in the dark room be less than 3 mm. in diameter the application of the shadow-test also becomes difficult or impossible. To dilate the pupil for this purpose cocain or the combination of cocain and homatropin is to be preferred. To dilate the pupil for examination by oblique illumination when disease or injury is suspected in the lens or anterior vitreous we wish a preparation that will give the widest pupil even under rather strong illumination. This will be a combination of cocain with one of the other mydriatics. Homatropin should be used if the dilatation is only desired during examination; or one of the slower mydriatics may be used with the cocain if the eye is subsequently to be kept under its influence.

In central corneal opacity or partial cataract, either polar or nuclear, we sometimes find that the patient sees better in a dim light because the enlarged pupil then permits the light to enter through the clearer portions of the cornea and lens. In such cases if just sufficient dilatation of the pupil can be obtained when the pupil is exposed to the stronger light vision can be materially improved. For this use cocain is quite unsuitable. Atropin is especially indicated both because of the comparative fixity it gives to the pupil, holding it at about the same diameter whether the light be bright or dim, and because of the persistence of its action, which keeps the conditions of vision comparatively constant without the necessity of frequent applications. The exact strength and frequency of application that will give the best result must be obtained by observation of the particular case, noting the extent and distribution of the opacity, the length of time after the application of the mydriatic, and the size of the pupil when the most satisfactory vision is obtained. The strength of solution required will always be much less than that commonly used to paralyze the accommodation. A solution of 1 to 2000, or 1 grain to 4 fluid-ounces, is a good strength to begin with. This may be instilled once every two or three days, preferably at bedtime, so that the most rapid changes produced by it may be past before the eyes are brought into use again next day.

For certain operations dilatation of the pupil is an aid or an important condition of success, as for the delivery of the lens in the simple extraction of cataract, or the division of secondary cataract. As soon as the anterior chamber is opened and the aqueous begins to escape the pupil contracts. This contraction is less and slower when the pupil has been dilated with cocain than when it is only under the influence of a "stronger" mydriatic. It should be remembered, however, that strong light overcomes the influence of cocain on the pupil, and advantage should be taken of the dilatation secured by excluding light from the other eye.

Suspected iritis is revealed or excluded by dilatation of the pupil. When there is much doubt as to participation of the iris in an inflammation one of the brief mydriatics, as homatropin or euphthalmin, should be tried first, and only when the iritis has been demonstrated in this way need the slower mydriatic be employed.

Dilatation of the pupil in actual iritis is of the greatest practical importance and presents especial difficulties. The iris is swollen by dilatation of its vessels, its movements are hampered by the deposit of exudate in its substance, and later by the plastic adhesions that bind it to the anterior capsule of the lens, and the general congestion and fulness of the tissue greatly interferes with the absorption of the drug employed. Under these conditions the action of the mydriatic may be greatly aided by such measures as local bleeding from the temple to lessen the fulness of the vessels and the internal administration of mercury to influence the tendencies of the exudates.

But there are also clear indications as to the particular mydriatic drug. The small amount taken up into the inflamed tissues renders imperative the use of strong solutions of those drugs which will in small quantity produce the most decided and lasting effects. Atropin and hyoscyamin or its equivalents, in solutions of 1 to 60 or even stronger, must be placed directly on the cornea where the largest quantity will pass through it to influence the iris, and these must often be supplemented by the use of cocain, also in strong solution. The tendency of the stronger mydriatics to cause constitutional symptoms, or in cases of rare idiosyncrasy to set up severe inflammation of the conjunctiva and lids, is the essential check upon the free employment of these drugs. Paralysis of accommodation is here an important aid in combating the intra-ocular inflammation and complete giving up of eye-work a condition of the best recovery.

After paralysis of the pupillary sphincter has been obtained it is at least doubtful if mydriatics like atropin can do much more to secure the breaking loose of adhesions. It has long been taught that these drugs also stimulate dilator fibers of the iris, but the behavior of the normal pupil under them, scarcely supports the view of an active dilatation through stimulation. Of the active retractive influence of cocain, however, there can be little question,

and experience seems to show that the retractile force increases with the dose of the drug which gains entrance to the tissues. Still, cocain is not a drug to be freely prescribed, even in connection with atropin, in the treatment of iritis. It should rather be used by the physician himself in his mydriatic attacks upon the inflamed iris so that its effects can be closely watched.

The combination of cocain with homatropin and other mydriatics has been mentioned. The weak point of cocain used alone is its unfavorable influence on the cornea. The liability to cause serious impairment of the corneal nutrition is the reason for not prescribing it to be used by the patient. Strong solutions cause drying and irregularity of the corneal surface and irregular astigmatism. This may greatly interfere with the ophthalmoscopic examination or the shadow-test, and by impairing acuteness of vision may quite nullify the benefit of dilatation of the pupil for the tests with lenses. On the other hand homatropin interferes more with vision by paresis of accommodation and dazzling when in a strong light and entails a longer period of waiting for recovery. By combining the two the same dilatation of the pupil for practical purposes can be obtained by the use of much weaker solutions and the unfavorable influences of both be eliminated. For simple dilatation of the pupil of the normal eye I have found the following solution most satisfactory:

Homatropin hydrobromate . .	gr. i
Cocain hydrochlorate . . .	gr. ii
Distilled water	f ʒ i.

M.

A single drop of this is to be placed on the upper margin of the cornea. Its maximum effect is produced in about one hour. Recovery from its effects is well advanced in six hours and practically complete in twelve. It causes no irregular astigmatism, but slight impairment of accommodation, and permits a good deal of contraction of the pupil in strong sunlight. Euphthalmin and cocain, each one per cent., in distilled water, may be employed for the same purpose.

THERAPEUTIC NOTES.

Salicylic Acid for Furunculosis.—PHILIPSON (*Deut. Med. Woch.*, May 4, 1899) advises the application of a plaster containing 50 per cent. of salicylic acid in the treatment of a well-formed boil. This should be changed four or five times a day and the narcotic process will be much hastened. When the core is eliminated, treatment which favors granulation may be begun. Minute furuncles are arrested by the application three times a day of pure alcohol, or alcohol containing 5 per cent. of tincture of benzoin. Larger furuncles may be washed with alcohol containing 2 per cent. of salicylic acid, all washing with water and soap being omitted meanwhile. In generalized furunculosis the parts should receive a warm bath daily and then be rubbed with vaselin containing 2.5 per cent. of salicylic acid.

Treatment of Chronic Otitis Media.—LEWY (*Therap. Monatshefte*, May, 1899) draws attention to the remarkable effects which can be produced by trichloracetic acid in chronic suppurations of the middle ear. The applications tend at the same time to close tympanic openings. Regeneration of the tympanum was obtained in the majority of the cases treated. The ear is first cocainized with a 10- or 15-per-cent. solution. A metallic loop upon which a crystal of the acid has been fused is then passed into the chamber and the mucous membrane cauterized by it. The edges of the tympanic opening are treated in like manner. For the latter one application a week will suffice. To obtain the arrest of suppuration in the middle ear it will be necessary to cauterize more frequently. The application is always painful despite the cocain, so that the saturated solution of the acid on a cotton swab is preferred by some to the solid crystal.

Aspirin or Acetyl-Salicylic Acid.—WOHLGEMUTH (*Therap. Monatshefte*, May, 1899) tested some of the compounds of salicylic acid in order to find one equally effective as salicylate of soda but less irritating. By the action of anhydrous acetic acid on salicylic acid he obtained white crystals of acetyl-salicylic acid, readily soluble in alcohol or ether, and to the extent of one per cent. in lukewarm water. The drug does not decompose in the stomach until it has been there two or three hours, so that it is to a great extent passed into the intestine unchanged and does not irritate the gastric mucous membrane as does salicylate of soda, which is decomposed almost as soon as it enters the stomach. The alcoholic solution of the new compound, aspirin, having such a bad taste, the drug was usually given in capsules. Its therapeutic effects are identical with those of salicylic acid, except that disagreeable gastric symptoms are almost entirely done away with.

Treatment of Appendicitis.—OSLER ("Practice of Medicine") deprecates the attempt to treat appendicitis by any of the ordinary medicinal agents, holding that the disease is essentially surgical in character and that operation is indicated, whether a tumor exists or not, when by the third day the features of the case point to a progressive lesion. The mortality from early operation is very slight. The use of opiates or of salines or other cathartics is to be condemned, as the former may serve to mask the symptoms and the latter prevent the limiting adhesions by causing general peristalsis. The surgeon may be called in too late, but he can never be called too early.

Test Meal in Diseases of the Stomach.—The Ewald and Boas breakfast is the best test (EINHORN, "Diseases of the Stomach"). One or two rolls (35-70 gms.; 9-18 ʒ) and one cup of tea or water (300-400 c.c.; 10-13 ʒ)

are taken in the morning in a fasting condition. Thus any other particles of food, as meat or asparagus, if found in the gastric contents would evidently have remained from a previous meal. One hour after the meal the gastric contents are removed. They are best obtained by means of the soft rubber tube, which should have several openings at its lower end, and a glass tube from three to five inches in length at its upper end. This tube is first immersed in a pitcher of warm water. The patient, a bib or towel around his neck, sits holding a wide-mouthed bottle in his left hand, near his chest; the physician takes the tube from the pitcher, places the glass end-piece in the bottle, the patient opens his mouth, and the tube is inserted to the pharynx. The patient is told to swallow once or twice, and the tube is rapidly pushed with the right hand into the stomach (about 45 cm., 18 inches). (The physician need not introduce his finger into the patient's mouth.) The best method of ejecting the gastric contents is for the patient to exert pressure upon his stomach by means of his abdominal muscles (the Ewald-Boas expression method). The patient inspires deeply and then compresses his abdominal muscles in the same manner as during defecation. The gastric contents are thus expelled through the tube into the bottle. Before removing the tube the glass opening must be occluded. Then the tube is withdrawn quickly. The ingesta thus obtained are filtered and the filtrate is tested for: (1) Reaction. (2) Hydrochloric acid. (3) Lactic acid. (4) Acidity. (5) Propeptone. (6) Peptone. (7) Pepsin. (8) Rennet ferment. (9) Dextrin. (10) Erythrodextrin. (11) Achroodextrin. (12) Maltose. All these tests are described at length.

[Stomach-tubes are now made for this purpose, which are provided with a large bulb midway along their course. This bulb is compressed, after which it receives the stomach contents.]

Treatment of Chorea.—ANDERSON ("Contributions to Clinical Medicine") says that antipyrin, with the exception of some of the other coal-tar derivatives, is the only drug from the use of which cure may be confidently expected in the treatment of chorea. It is not the dangerous drug which it is commonly believed to be, but may be given with safety in very large doses even to children if the initial dose be small, and increased very cautiously. In many cases in which bad results have followed the administration of antipyrin the fault has been either in some impurity in the drug, or in an idiosyncrasy on the part of the patient. The initial dose should never be larger than 10 grains, and, if no bad results follow, it should be rapidly but cautiously pushed until doses of 20, 30, or even 40 grains thrice daily are given. If nausea or vomiting occur, the drug should be omitted for a day or two. The results of this treatment of chorea are particularly good.

Treatment of Migraine.—W. H. THOMSON ("System of Practical Medicine," vol. iv). At the beginning of the attack, whether the stomach is full or not, lavage is of great value in the treatment, as it is important that all irritating substances should be removed from the stomach, and spontaneous vomiting does not always produce that result. Ergot is chief among the drugs to be used in treating the headache. It should be given in full doses, 1 dram of the fluid extract, combined with the same amount of the elixir of cinchona, repeated in two hours if necessary. If the drug causes the stomach to rebel, as is sometimes the case, the same dose, diluted with 2 ounces of warm water, may be given by the rectum. The coal-tar derivatives are very often efficacious, if the patient remains quiet after the administration of the drug, and the effect is increased if a dram of the aromatic spirits of ammonia in water be given just after the 10 or 15-grain dose of antipyrin or phenacetin, which should be repeated in three hours if necessary. In some cases the nitrate of strychnin, in doses of $\frac{1}{40}$ of a grain, or the tincture of nux vomica, in doses of 10 drops is useful when the antipyrin or phenacetin seems to be losing its effectiveness. In other cases relief is best obtained by the use of caffein in doses of from 2 to 3 grains, repeated in one hour if necessary. These are the cases in which nausea and vomiting are not prominent symptoms. Five- to 7-drop doses of the tincture of gelsemium, combined with from 15 to 20 grains of ammonium bromid, will often relieve the headache, but not the nausea. But the most important therapeutic indication is to prevent the recurrence of attacks. Systematic open-air exercise of a pleasurable kind, but not involving muscular fatigue, and elimination from the diet of such articles of food as are found by experience to cause attacks, are indicated. Except in the cases in which gastric catarrh (a condition which is not often found in migrainous patients) is present lavage of the stomach is contraindicated. The stimulating effect of a tumbler of hot water containing 1 dram of sodium phosphate and 1 grain of quinin or 5 grains of sodium salicylate on rising in the morning will often prevent the occurrence of headache. The acidulated preparations of phosphorus and pepsin are often beneficial, as:

℞	Acidi phosphorici diluti	℥ iss
	Tinct. nucis vomicæ	ʒ ii
	Syr. hypophosphitis q.s. ad	℥ vi.

M. Sig. Two teaspoonfuls in water after meals; or

℞	Acidi lactici	ʒ iv
	Ess. pepsinæ ad	℥ vi.

M. Sig. Two teaspooonfuls after meals.

In cases in which the attacks occur with tolerable regularity at about a week's interval, the habit may be often broken up by the administration of 1½ grains of calomel in six fractional doses, given at quarter-hour intervals, followed by a saline cathartic on the day before the attack is expected. When patients have intestinal dyspepsia with brown tongue, mercurial laxatives are indicated and it is well to follow these with a systematic course of 10 grains each of salicylate of bismuth and sodium benzoate in capsules, to be taken one hour after meals.

For Hypertrophied Tonsils.—CASTEX advises irrigation twice a day, using the following solution:

℞	Resorcin	gr. lxxx
	Betanaphthol	gr. v
	Aquæ	Oii.

M. Sig. For irrigation of tonsils and pharynx.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS in the form of Scientific Articles, Clinical Memoranda, Correspondence, or News Items of interest to the profession are invited from all parts of the world. Reprints to the number of 250 of original articles contributed exclusively to the MEDICAL NEWS will be furnished without charge if the request therefor accompanies the manuscript. When necessary to elucidate the text illustrations will be engraved from drawings or photographs furnished by the author. Manuscript should be typewritten.

J. RIDDLE GOFFE, Ph.M., M.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	7.50

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in *registered* letters.

LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK,
AND NOS. 706, 708, & 710 SANSOM ST., PHILADELPHIA.

SATURDAY, AUGUST 12, 1899.

SANARELLI AND THE PATHOGENIC ROLE OF THE BACILLUS ICTEROIDES.

MUCH has been written in this country in criticism of Sanarelli's work on yellow fever. It has been a fair and shining mark for the shafts of the general commentator as well as the bacteriologist. With its author at a good and seemingly safe distance away it has been comparatively easy to find more or less obvious objections to his technic and rather patent faults in his conclusions. We are very glad, then, if for no other reason than for the sake of the good old-fashioned American spirit of fair play, to be able to present this week to our readers Professor Sanarelli's answer to his critics. We venture to say that it will be found effective and complete. While it is a little more personally controversial in tone than we might have wished, we think that there will be found in the circumstances that called it forth some justification for thus treating the subject.

Sanarelli proves well able to dispose effectually of certain objections that carried considerable weight against his theory of the specificity of the bacillus icteroides in yellow fever. The fact that the bacillus described by him was able to withstand exposure to very low temperatures without losing its vitality or virulence has been supposed especially to militate against the notion of its etiological connection with yellow fever, since that disease, as is well known, usually disappears at once after the occurrence of the first frost. This behavior of Sanarelli's bacillus in the presence of low temperatures, first brought to public attention by Novy in the columns of the MEDICAL NEWS, has been a favorite argument against the value of Sanarelli's work by those who controverted his conclusions as to yellow fever. Sanarelli, we think, shows that the objection really has no weight, and that though many micro-organisms cease to reproduce their kind so luxuriantly at low temperatures as they do at higher ones, yet they by no means lose their vitality, but may be awakened to reproductive activity by favorable conditions. His reference to some of our American yellow-fever epidemics during which the disease raged virulently despite zero weather is an especially telling point in favor of this view.

In general it way be said that while at first the current of bacteriological criticism set in strongly against the acceptance of Sanarelli's discovery the present trend of bacteriological literature is quite as strongly in his favor. Sanarelli himself has been able to make abstracts from no fewer than twenty-two papers which have appeared during the past year whose authors are all agreed that the bacillus icteroides is the cause of yellow fever. The writers are all practical bacteriologists who, in various countries (at least four), have done experimental work with the bacillus, and whose conclusions are the result of their study of some special feature of the pathogenic properties of the new microbe.

One of the most striking testimonies recently presented is contained in a private letter to Sanarelli himself from the head of the United States Yellow-Fever Commission of the Marine Hospital Service, which has been conducting its investigations at Havana. The letter is dated May 31, 1899, and expresses the heartiest commendation and sincerest admiration for Sanarelli's great work and the Commission's entire agreement with his conclusions.

The letter is all the more interesting as it anticipates the official publication of the final results of

the investigation which will only come in the regular course of official reports. It would seem, then, that as far as practical applications are concerned the medical world is bound to accept the weight of authority that has accumulated in favor of Sanarelli's discovery as a sufficient guarantee of its genuineness and that quarantine and therapeutic work in yellow fever at all our exposed ports must be carried on with this idea in view. The definite acceptance of the bacillus icteroides as the cause of yellow fever will simplify studies of the disease, make precautions against it easier to take, and, above all, will arouse medical and general confidence in the promising method of treating the disease by an antitoxic serum that Sanarelli's own work has pointed out as feasible.

ANTISEPTICS IN FOODS.

THE adulteration of food is so often a harmless cheat that little notice is taken of it. One form of adulteration, however, which is only a few years old, has received considerable attention from scientists and physicians and under the title "embalmed beef" recently interested every one in America, from the President to the smallest newsboy. We refer to the addition of antiseptics, especially salicylic and boric acid, and more recently formalin, to perishable foodstuffs. How bitter were the denunciations of men who would add these things to the soldiers' meat! How calmly we go on allowing the sale of milk which contains them to feed the poorer children of our cities!

This may seem like an unwarrantable assertion, but there is strong probability that it is the exact state of affairs, judging from the meager reports of analyses published in America, and the fuller ones published by Public Analysts in England. In the latter country there have been officials of this character since 1860, and a great deal of law-making to prevent the adulteration of foods, and numerous convictions with some pretty severe penalties for infringements. And yet, in the report of the Public Analyst for Birmingham for the three years ending March, 1899, it is stated that one of the three antiseptics mentioned above was found in 460 out of 2300 specimens of food examined, just 20 per cent. Boric acid was found in 35 per cent. of the 882 specimens of butter examined, sometimes in such quantity that the water in the butter would not contain it, and it existed partly in crystals. More recently it has been in part superseded by formalin as a preservative for milk, this substance being found in 47 out of 1000 specimens examined.

Here is a field which invites the more assiduous attention of the Board of Health of our own city. While not inclined to deprecate the value of the scientific investigation of rabies, for example, it is of more immediate concern to know that foods are free from such injurious preservatives, and especially that milk is not so polluted. Not only do these chemicals render it difficult of digestion, but they enable a dealer to pass off stale milk, or milk which has been carelessly handled, as fresh, clean milk, thus doing the consumer a double injury.

OPERATIVE INTERVENTION FOR TUBERCULOSIS OF THE KIDNEY.

IN his paper on "Tuberculosis of the Kidney as an Indication for Nephrectomy," which we publish this week, Dr. Reynolds deals in a very practically suggestive spirit with a difficult question in surgery. The battle with that most fatal scourge of humanity, the white plague of the North, tuberculosis, is on all along the line and surgical intervention for its lesions is, when practicable, the ideal treatment. The present work in renal surgery for tuberculous conditions is thoroughly scientific and conservative and is worthy of the best effort on the part of those who have to do with the surgery of this organ. The methods and results of the work deserve careful attention and study.

The catheterization of the ureters in the female, thanks to the work of Kelly and Pawlik, has become comparatively simple and when combined, as suggested in Dr. Reynold's paper, with centrifugation of the urine and injection of the sediment into susceptible animals, the procedure constitutes a diagnostic auxiliary that is almost infallible and which can be relied on to furnish unfailing indications for or against even so grave a surgical procedure as nephrectomy.

We no longer believe that micro-organisms can pass through a healthy kidney, and therefore when we are able to demonstrate in the urine taken directly from a ureter the presence of tubercle bacilli, it points inerrably to the existence of a tuberculous

focus somewhere in the upper urinary tract of that side. The indication thus furnished for nephrectomy is an absolute one.

It must be remembered, moreover, that the recent labors of Caspar and Nitze in Berlin and of their followers all over the medical world, have made it evident that catheterization of the ureters in the male is very often, certainly in a majority of cases, not only possible but comparatively easy. The collection of the urine directly from a ureter gives much more reliable information than does even an exploratory lumbar incision since the external surface of the kidney when exposed to inspection may be perfectly healthy, and yet a tuberculous focus exists in the interior of the organ. Communications of pathologic processes occur much more readily with the pelvis of the kidney than they do with its external surface. When the tuberculous foci are very limited in extent and therefore most hopeful for operation, they will often permit the discharge of tubercle bacilli into the urinary passages. The chances for early diagnosis and operation are rendered with this method very promising indeed.

It would seem, then, to be only a question of a short time until the puzzling cases of progressive tuberculous renal trouble running their course without any definitely pathognomonic symptoms that reveal the real cause with any assurance to ordinary diagnostic methods will cease to be the *opprobrium medicinæ* they have been up to the present time. The most striking uniform symptom in such cases is often a hopelessly progressive emaciation, which yields to no medicinal treatment and so makes them veritable nightmares for the medical attendant having them in charge. The encouraging results reported by Dr. Reynolds appear to indicate that these sad cases are now brought within the realm of hopeful therapeutics, and justify an abundant confidence in the future of renal surgery for tuberculous conditions.

ECHOES AND NEWS.

Yellow-Fever Epidemic Disappearing.—It was reported on August 7th that no new cases of yellow fever had developed at the Soldiers' Home at Hampton since August 1st. The patients at the Home are all convalescing.

New Trees in the Adirondacks.—Professor John Gifford, who has been elected to the chair of forestry in Cornell, reports that over a million small trees of different varieties have been planted within the past year on the 30,000 acres owned by Cornell near Axton in the Adirondacks.

Sir William Stokes and the International Medical Congress.—Sir William Stokes, Surgeon-in-ordinary to the Queen of England has been appointed and has expressed his willingness to serve as one of the honorary presidents of the International Medical Congress, to be held in Paris next year.

Cows Spread Typhoid Fever.—Thirty cases of typhoid fever occurred in Flushing, L. I., during July. It is declared that the disease was spread by one milkman, whose name is withheld, who has a pond of stagnant water on his place in which are typhoid-fever bacteria. His cows had been drinking this water.

Lunacy in England and Wales.—In England and Wales the lunatics on January 1st of the present year numbered 105,086, an increase of 3114 over 1898, the largest increase yet recorded. An analysis shows this spread of lunacy is not confined to any one class, although naturally the largest increase is among paupers. The situation is regarded as so alarming that an early official inquiry is demanded into the causes and the best means of combating them.

Race Winnings and Charity. — It is reported that the Duke of Westminster has presented the sum of £10,000, the amount won by his horse, Flying Fox, in the Eclipse stakes at Sandown Park some weeks ago to the Royal Alexandra Hospital, Rhyl, of which His Grace is president. The London *Lancet* says in comment on the matter: "We commend this excellent example to other owners who race for the love of the sport and not for filthy lucre."

Trained Chiropodists for the British Army.—As so much depends on the soldiers' feet in the movement of large bodies of troops, the British Army authorities have decided to train certain of the non-commissioned army officers in chiropody. The experiment has been tried already and has been found to add greatly to the efficiency of the troops. It is thought now that a permanent corps of chiropodists will be trained as soon as possible, and their services made available for all the infantry battalions.

A Surgeon behind His Gun.—The London medical journals make much of the fact that at the recent army contests in sharp-shooting in England the most consistent shooting at the meeting was done by a member of the medical profession. Surgeon-Lieutenant Bertram of the Canadian team proved to be the best general score-maker and comes home as a consequence with a number of medals and prizes, though not with the medal for the best marksmanship, for which he was beaten by a slight margin.

Comparative Mortalities from Tuberculosis. — According to recent statistics published in *La Nature* the following is the number of deaths per million of inhabitants annually from tuberculosis in the countries named. In France, 2823 per million; in Switzerland, 2715; in Hol-

land, 1918; in Japan, 1194; in Austria, 3682; in Italy, 1340; in England, 1568. In all of them there has been a notable reduction of the mortality in recent years, and it is hoped to still further reduce the mortality from the dread disease.

An Epidemic of Poliomyelitis.—An epidemic of what Dr. J. W. Poucher, a resident of Poughkeepsie, N. Y., considers to be poliomyelitis has been prevailing among the children of that city. Up to August 4th there were fifty cases, with but one fatality, which possibly was really a case of spinal meningitis. The causation up to that date had not been satisfactorily demonstrated. Drs. D. M. Sheedy of Poughkeepsie and H. D. Chapin of the Post-Graduate Hospital, New York, are making microscopic and other investigations.

A New Theory in the Etiology of Appendicitis.—Dr. Alexander Haig, whose works on gout and uric acid are well known, recently suggested that in a large number of cases of typhlitis and appendicitis the primary lesion was a gouty affection of the fibrous tissues in the neighborhood of these structures. He suggested also that the proper treatment for many cases under these circumstances was the administration of large doses of salicylate of soda or other salicylates. Of course a certain number of cures with the remedy have already been reported, others will doubtless follow.

Aural Menstruation.—The Paris correspondent of the *Medical Press and Circular*, London, reports a case of this anomaly related by Dr. Lermoyez of Paris. The patient had each month prodromic symptoms such as lassitude and headache, and then a thin stream of blood flowed from the right ear. No lesion of any part of the organ could be discovered. The tympanum was intact, but the cutaneous vessels of the external auditory canal were much enlarged. At the end of three years the vicarious menstruation ceased and the menses came through the ordinary channels.

Smallpox Outbreaks.—Up to August 3d there had been some thirty cases of smallpox in Pittsburg, and neighboring towns, all of which places are on the line of the Pennsylvania Railroad. No money has been appropriated for the establishment of a quarantine, and an appeal has been made to the Westinghouse Electric Company for funds for the purchase of vaccine virus and for quarantine expenses. An epidemic of smallpox has broken out in Claiborne County, Tenn., on the Kentucky border. It is believed that the efforts of the authorities to prevent the spread of the disease will be successful.

Caterpillar Rash.—There is a tradition in some parts of the country that the handling of certain species of caterpillars produces a rash. A correspondent of the *British Medical Journal* for July 29, 1899, reports a series of such cases in children who had been handling caterpillars of the woolly-bear variety, the ordinary, brown, hairy caterpillar. The lesions were erythematous patches accompanied by almost intolerable itching. The spots appeared on exposed parts of the face and neck though the hands were not affected. The itching yielded to ordinary remedies and the erythema disappeared in twenty-four hours.

Munchausen up to Date.—The following testimony was recently given by a woman at the anniversary services of faith-cure believers, which was held at Mount Zion Sanctuary in Chapel avenue, Greenville, New Jersey: "This man when young, spilled some acid in his eyes and destroyed the sight of both. The physician removed his eyeballs and he was totally blind for many years. He was finally persuaded to pray for the restoration of his sight. Shortly afterward he felt something growing in the places where his eyeballs had been. New eyes were given to him, and to-day he can see as clearly as any person here."

Tuberculosis in Cattle.—The special Assembly committee appointed to investigate the operation of the present laws in relation to tuberculosis and other contagious diseases in animals and infections in animal products met at Albany on August 1st. Dr. Edward Moore, a veterinary surgeon of Albany, declared that when tuberculosis in cattle is common human tuberculosis is so rare as to bear no relation to it and that bovine tuberculosis is not communicable to man. Dr. Moore declared that the State Board of Health has failed to produce facts to prove its contention that bovine tuberculosis is communicable to the human subject.

The Doctor and His Patient.—Professor Osler, in an address delivered before the students of the Albany Medical College recently said: "You must feel that you have entered upon a profession that appeals both to the head and to the heart. Dealing as we do with poor, suffering humanity, we see the man unmasked, exposed with all his frailties and weaknesses, and you have got to keep your heart pretty soft and pretty tender not to get too great a contempt for your fellow-creatures. The best way to do that is to keep a looking-glass in your own hearts, and the more carefully you scan your own frailties the more tender you are for the frailties of your fellow-creatures."

Cockles and Typhoid Fever.—According to the London *Lancet* a number of cases of typhoid fever have been occurring recently in and around Chichester, England, whose origin has been wrapped in mystery. Since the beginning of the year fifty-five cases have occurred. In not less than twenty of these it was found on careful inquiry that cockles had been eaten within ten days of onset of the fever. It has practically been decided by the authorities that the cockles, which are gathered from places somewhat liable to be affected by sewage, may be the cause of the disease, and that not alone the more delicious bivalves, but the more vulgar shell-fish may contain the germs of disease. Bacteriological investigations to absolutely decide the question are now in progress.

The Appetite of the Russian.—The *Philadelphia Telegraph* describes the dinner given by a Russian naval officer, at present staying in Philadelphia, to his brother officers. By way of an appetizer there was served salt fish,

smoked salmon, imported herring, bologna sausage, pickles, potato salad, vodki—Russian whisky—and American whisky. An hour later the dinner proper began. A Russian vegetable soup "of excellent savor, but unspellable, and to an American unpronounceable" was first served. Next came a whole baked salmon "of regal dimensions" stuffed with brown, cracked wheat. This was followed by an entire roast pig, whose "in'ards" were filled with vegetables. Next came a peculiar Russian pie of meat, fish and vegetables, cut into slices and garnished with mustard. Then a Russian salad and lastly dessert, the whole having been convoyed with champagne and liquors galore.

Next Year's Congresses at Paris.—More than 100 international congresses of various kinds are to be held in Paris next year during the course of the Exposition. A certain number of these of more special medical interest have already been announced in the columns of the MEDICAL NEWS. Just about the time of the International Medical Congress that of from August 2th to 9th the following congresses on subjects of more or less importance to medical men are to be held: An International Congress of Applied Chemistry from July 23d to the 31st; International Congress for the Amelioration of the Condition of the Blind, August 5th; International Congress of Public Charities and Philanthropy, July 30th to August 5th; International Congress of Deaf Mutes during the first week in August; International Congress of the Medical Press sometime during Medical Congress week; International Dental Congress, August 8th–14th; International Congress of Professional Relations and Deontology (the science of duties) from July 23d–28th; International Congress of Psychology, August 22th–25th; International Congress of Hygiene, August 10th to 17th.

Anchylostomiasis in Belgium.—According to a recent report of the French resident consul at Liege, in Belgium, anchylostomiasis, that is, the anemic condition due to the growth of the so-called anchylostomum duodenale in the intestines, is very prevalent among the coal-miners in the neighborhood of Liege. It has attacked principally the older miners. The disease is caused by the swallowing of anchylostomum eggs which usually find their way into the drinking-water of the workman because of carelessness about cleanliness and negligence in the matter of excreta. There has not been so far as we know any epidemic of the disease in this country but any one afflicted with the disease might easily bring about its introduction and the habits of our workmen in mines, tunnels, brickyards and the like, where infection usually takes place are such that the disease would readily spread. Meantime obstinate cases of anemia occurring particularly in men who come from the Low Countries, or from the region around Dusseldorf or Cologne on the Rhine, or from the Northern part of Italy, should be suspected and their tools carefully examined for the eggs of the parasite.

International Congress of Hypnotism.—The Second International Congress of Experimental and Therapeutic Hypnotism is to be held next year in Paris from August 12th to 15th. The last international congress on this subject met in 1889. The next meeting is to be held under the auspices of the French Society of Hypnology and Psychology, which has over 150 members and publishes a monthly magazine the *Revue de l'Hypnotisme*. The acting president of the forthcoming congress is Dr. Jules Voisin, the well-known alienist and author of several works on idiocy and allied subjects, who is one of the attending physicians at La Salpétrière. A number of well-known authorities on the subject of hypnotism have expressed their willingness to be present and read papers, among others Professor Grasset of Montpelier, Drs. Vogt of Berlin, Lloyd Tuckey and Milne Bramwell of London, Schrenk-Notzing of Munich, Bernheim and Liegois of Nancy, Tokarski of Moscow. A number of invitations have been issued and those who are interested in the subject and contemplate attending the meetings, are asked to communicate with Dr. Berillon, 17 Rue des Beaux Arts, Paris.

Medical Education in Kentucky. — The State Board of Health of Kentucky has given notice that it will hereafter refuse to recognize as a basis for certificates to practise medicine diplomas from any medical college which does not in good faith comply with the requirements of the American Medical College Association, the American Institute of Homeopathy, and the American Eclectic Medical College Association, respectively, both as to preliminary education and four-years' course of study. This means that no school that graduates three-year students will be recognized in Kentucky hereafter. The Board provided an examination for three-year graduates of the present year, as many of the students had attended such schools in ignorance of its advanced requirements, but found this course unsatisfactory, a large percentage of the examinations indicating incomplete preliminary education as well as imperfect medical training. This standard for the State of Kentucky was made and promulgated in 1891, to take effect the present year, but is again published that schools patronized by Kentucky students and future graduates expecting to practise in the State may fully understand the requirements of the Board.

MEDICAL MATTERS IN NEW YORK.

COMPTROLLER'S PLAN TO RETRENCH—BOGUS HEALTH INSPECTORS—DR. CROWE IS "WANTED"—PATIENTS SAY THEY WERE CLUBBED—DEATH-RATE IS LOWER—REPORT OF CONTAGIOUS DISEASES.

COMPTROLLER COLER is preparing plans for cutting down the city budget for 1900. If these are carried out the city will be saved at least $5,000,000 next year. In the very first place Mr. Coler will recommend a big reduction in the amount of money appropriated to charitable institutions controlled by private corporations or individuals. He will urge that many such institutions be cut off the list and that the amount allowed to others be reduced. His plan, if adopted, will result in a saving of possibly $1,000,000 a year in the appropriation for public charity alone.

A number of unauthorized persons have been visiting

private houses in the guise of sanitary inspectors in the service of the Health Board. Some have demanded fees and others have attempted a species of blackmail, threatening to perform obnoxious acts if they were not "called off" by means of money bribes. A woman complained on August 3d to President Murphy of the Health Board that a man exhibiting a card on which was printed "H. Burnet, M.D.," called and insisted, in the name of the Health Board, on going through her house. He wanted to take some of the furniture away to be disinfected, and he also wanted to look over all the clothing in the house.

Dr. S. W. Crowe of No. 228 West Forty-seventh street is wanted by the police, firstly, for disturbing the peace, and secondly, to pay damages, *to wit:* "to one hole burned in the asphalt of Longacre Square." The facts in the case are about as follows: One William Waldorf Astor, erstwhile an American citizen, has become a humble subject of a foreign potentate. This renunciation of allegiance to these United States greatly incensed Dr. Crowe, whose patriotism seems to be of an exceedingly virile and robust sort. Dr. Crowe expressed his contempt by making an effigy of Mr. Astor, which, with a barrel filled with combustibles and several gallons of kerosene, was put on a truck, the doctor having been aided in the transfer by some thirty of his fellow-patriots, each of whom he rewarded by the payment of $2. The truck was then driven down Broadway to Thirty-fifth street, followed by an admiring crowd, until it reached the saloon owned by Mr. John L. Sullivan, at one time a noted pugilist. Here Dr. Crowe "set up the drinks" for everybody in sight, after which his enterprise had the honor to receive Mr. Sullivan's unqualified commendation. "This country would be all right," said this exemplary "gent," "if all the citizens wus like you." The procession augmented on the route by hundreds of Tenderloin habitués, then returned to Longacre Square, many exciting incidents transpiring on the way. Here the "cop" being, as usual, conveniently absent, the effigy of Mr. Astor was burned, the assembled multitude applauding vociferously the while. During the burning Dr. Crowe made a speech, which was disturbed by the altogether unexpected arrival of the "cop," on seeing whom Dr. Crowe cut short his speech and disappeared ignominiously in the crowd. Up to the present writing the police have not found him.

John Curtis was taken to Roosevelt Hospital on August 2d, suffering from a fractured skull. On the same day William Harvey, eighteen years old, was taken to St. Vincent's Hospital, suffering from a broken jaw and other injuries. In both these cases it is declared the clubs of policemen did the damage; and there is not the slightest reason to doubt the assertion. These incidents are details which, with many others, show how we are reverting to the halcyon days of Tweed, and how, even in those days, the city was not so outrageously misgoverned as it is to-day. In this connection we recall the classic excuse of the "cop" who was accused of unnecessary clubbing. "Sure, it wasn't me hit him. He run up agin me noight-stick."

The report of the Bureau of Vital Statistics for the week ending July 29th shows 821 deaths in the borough of Manhattan, against 848 for the corresponding week last year. The percentage was 20.24, as against 21.60. There were twenty-five deaths due to "heart-failure". This phrase is often used to avoid specifying the cause of death. It means no more than "failure of respiration" would. Such cases should be referred to the coroner.

Following is the report of contagious diseases for the week ending August 5th: Measles, 156 cases, 8 deaths; diphtheria, 155 cases, 19 deaths; croup, 1 case, 4 deaths; scarlet fever, 54 cases, 5 deaths; chicken-pox, 8 cases; tuberculosis, 150 cases, 122 deaths; typhoid fever, 43 cases, 15 deaths; cerebrospinal meningitis, 11 deaths; totals, 567 cases, 184 deaths.

MEDICAL MATTERS IN CHICAGO.

A CASE OF DIVINE HEALING—A NEW HOSPITAL TO BE ADDED TO THE MATERNITY DISPENSARY OF THE BUREAU OF ASSOCIATED CHARITIES—YOUNG WOMAN'S AUXILIARY CHARITY—MEDICAL BOARD OF THE DISPENSARY — VIOLATION OF ICE REGULATIONS—COLLECTION OF GARBAGE TO BE UNDER THE CONTROL OF THE CITY HEALTH DEPARTMENT.

As a result of the disclosures made concerning the death of Mrs. Annetia Flanders, who was treated with "divine healing" by a Mrs. Bratz, the State Board of Health has decided to institute an investigation of the "divine healing" method, as carried on by the Zion Home and the Divine Healing Mission of Dr. John Alexander Dowie, under whose direction Mrs. Bratz practises. Attorney John A. Barnes, counsel for the Board, will enter suit against Mrs. Bratz for practising in the Flander's case without a license. He will also take immediate steps to secure the revocation of the license of Dr. John G. Spelsher, who is an official of the Dowie Institute, on the charge that the latter has made a practice of signing death-certificates without finding out the cause of death. It is the intention of Attorney Barnes to summon all the officials of the Dowie Institute as witnesses to testify on the process of "divine healing." The evidence which he has obtained concerning the death of Mrs. Flanders has warranted an order from the State Board of Health for an examination into the practices of the promoters of this institution. The State Board of Health has been after them for a long while, and Mr. Barnes believes that he has procured tangible means of bringing certain persistent offenders to justice. There is not much question in his mind that the developments will surprise persons who are not familiar with the work of Dowie.

Adherents of the faith of divine healing insist that they are exempted from prosecution by the same law under which the State authorities expect to proceed. This act provides that "any person who treats or prescribes to treat any physical ailment or injury without a license shall be liable, and that the act shall not apply to surgeons of the United States Army, Navy, or Marine Service in the discharge of their official duties, or to any person who ministers to the sick and suffering by mental or spiritual means without the use of any drug or material remedy."

The outcome of this case will be watched with much interest both by the laity and the medical profession.

During this month a hospital will be added to the maternity dispensary of the Bureau of Associated Charities. It will be in Ashland Boulevard. During the five years the institution has been established members of the medical staff, including Drs. E. J. Doering, Henry T. Byford, N. S. Davis, Jr., and Henry B. Favill, have attended 3000 maternity cases in individual homes. While the outside work will be continued, it has been found advisable to provide a hospital where patients may be taken from their unsanitary surroundings and properly nursed during illness.

A charity which has been conducted in connection with the dispensary, and which will continue with the hospital, is that of the young woman's auxiliary, which supplies clothes for the mothers and their infants. The hospital will be under the direct supervision of Mrs. E. C. Dudley, wife of Dr. E. C. Dudley, with Mrs. E. E. Koch as head nurse.

The dispensary was founded by Dr. Joseph B. DeLee, who appreciated the necessity of providing scientific treatment for the poor in maternity cases. He also realized the great value such work would be to students of medicine, and since the inception of the scheme he has labored untiringly for its success. The work has progressed and is increasing steadily.

The medical board of the dispensary consists of four consulting physicians, three obstetricians, ten physicians for the treatment of special diseases, and eight resident physicians. During the year ending February, 1899, 93 students and 17 doctors, including internes, were engaged in the work, and 10,631 visits were made to patients. Students were furnished by eleven colleges, among them being Rush, College of Physicians and Surgeons, the Northwestern University Medical School, University of Michigan, the Toronto Medical College, etc.

Imperative orders to arrest all violators of the ice-inspection regulations were issued by Commissioner of Health Reynolds a few days ago. The intention is to catch the small retail dealers, expressmen, and peddlers, who engage in the trade without paying a license, thereby escaping the inspection system. Dr. Reynolds estimates that there are more than one hundred of these small offenders. They sell ice in the poorer districts in direct violation of the inspection regulations and contrary to the general health ordinances. The department officials say they procure ice which, under the department regulations, should be used for cooling purposes only, and retail it for culinary and domestic purposes. This is considered a menace to the health of the purchasers, and for this reason Commissioner Reynolds is having his subordinates make a hard effort to break up the practice.

Control of the collection of garbage by private contractors will soon be entirely in the hands of the Health Department of this city, and Commissioner of Health Reynolds promises to enforce regulations which will remedy the existing conditions. At its last session the city council passed an ordinance authorizing the Health Commissioner to license private garbage collectors and to establish regulations governing the traffic. So soon as Dr. Reynolds completes his regulations, upon which he has been working for some time, they will be put in effect. The private collectors who do the work in the down-town districts have no connection with the city garbage forces. They simply remove refuse from hotels, restaurants, and wholesale establishments, from which collection by the city is not required in the ordinances.

CORRESPONDENCE.

AS OUR FRIENDS SEE US.

To the Editor of the MEDICAL NEWS.

DEAR SIR:—Some years ago the *New York Medical Journal* did me the honor to publish an article treating of the correct formation of new medical terms. Since then much has been said about "purity" of the linguistic source of such terms. The papers in your issue of April 22, 1899, set me to thinking on the subject again. In all these discussions I have not observed that any one considers the common origin of Greek, Latin, Russian, Teutonic, et cetera, and, of course, a nearness of spirit in the natural forming of thought-expressing vocables. In the physiology of animal and vegetable forms the wise selection and combination of individuals from kindred stocks usually produce good results. In the making of new, significant expressions, why not choose those which will give (1) the meaning; (2) ease of enunciation; (3) terseness; (4) beauty of sight and sound. When we consider the source of the various elements thus composed (or compounded) a liberal mind may well hesitate before deciding that they are hybrid. Hybrids die out; such forms live on.

Permit me to express my pleasure and appreciation anent the excellent conduction of the MEDICAL NEWS. During recent months I have especially enjoyed the editorials for the judicial and judicious tone, together with the evidences of the mind, esthetical in rhetoric and poesy, that lives and shines through all.

Sincerely yours,

FRANKLIN B. STEPHENSON,
Surgeon, U. S. N.

U. S. S. "OREGON,"
MANILA, PHILIPPINE ISLANDS,
June 28, 1899.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

ORIGIN OF THE PLAGUE IN EGYPT—SMALLPOX AND VACCINATION IN INDO-CHINA — COMPARISON OF TUBERCULIN AND TOXALBUMIN OF TUBERCULOSIS — COLI BACILLI FOUND IN SPUTUM OF PURULENT BRONCHITIS — TREATMENT OF PELVIC HEMATOCELE—OPERATION FOR IMPERFORATE ANUS PERFORMED THREE DAYS AFTER BIRTH—RELIEF OF PROSTATIC HYPERTROPHY — BRONZING OF THE SKIN PRODUCED BY ARSENIC MISTAKEN FOR ADDISON'S DISEASE — VICARIOUS MENSTRUATION FROM THE EAR—TYPHOID FEVER IN PARIS.

AT the Academy of Medicine, July 4th, PROUST spoke of the reappearance of the plague in Egypt, after a free

interval of fifty-five years. The pilgrimage to Mecca could not in this instance be held responsible, since the outbreak occurred before the pilgrimage began. It came from Bombay, probably by a steamer. All of the forty-two cases officially reported up to date were of the bubonic type, except one pneumonic one. Forty per cent. of the cases were among Europeans. On account of the finding of dead rats in the houses, the physicians of Alexandria hold to the theory that these animals were instrumental in the spread of the disease.

HERVIEUX communicated to the Academy, July 11th, a note upon the ravages of smallpox in Indo-China, where there are no adequate measures against the spread of the disease, and where vaccination is pretty generally unknown, especially in the provinces. Smallpox causes more than two-thirds of the total infant mortality, and only five out of one hundred adults are without the marks of smallpox. To it is ascribed more than ninety per cent. of the cases of blindness. In Laos all the children were slain by an epidemic, so that the men were obliged to go to Siam for their wives, there being no young girls left in their own country. Hervieux urged the estalishment of compulsory vaccination, upon both humanitarian and economic grounds.

At the Biological Society, June 17th, GOUGET and BEZANCON compared the poisons produced by tubercle bacilli. Their experiments showed that besides the well-known tuberculins there is another poison produced by the bacilli—a toxalbumin. The former produce a rise of temperature when administered to guinea-pigs. The latter depresses the temperature. Like the toxins of tetanus and diphtheria it is destroyed by heat. The experimenters were not able to separate it perfectly from the tuberculin, so that their preparations sometimes caused hyperpyrexia, sometimes hypopyrexia, and sometimes the two reactions successively.

At the session of July 1st NOICA said that he had found a certain number of cases of bronchitis in which the fetor seemed due to the presence of coli bacilli. In three of them he had succeeded in isolating this microbe from the purulent sputum.

At the Surgical Society, June 27th, REYNIER reported two cases of dangerous hemorrhage following incision into a retro-uterine hematocele, once by the vaginal and once by the inguinal route. The patients were saved by the prompt performance of laparotomy, and he did not hesitate to say that such is the rational method of treatment of hematocele in Douglas' fossa—since severe hemorrhage is not an unusual concomitant.

POZZI said that he had performed colpotomy, a great many times for retro-uterine hematocele, and if hemorrhage occurred, he had always been able to control it by tamponing with gauze.

ROUTIER, July 5th, said that he was once an advocate of laparotomy for retro-uterine hematocele. He now reserved that operation for those cases in which the hemorrhage is plainly abdominal. When the hematocele is pelvic colpotomy is the natural operation. It is simple, gives free exit to the blood and placental débris, and the lesions in the tubes or ovary are usually so little advanced that they disappear by atrophy, without further operative treatment. The only objection to the operation seemed to be the danger of hemorrhage, and this ought to be controlled by tampons.

CHAPUT preferred colpotomy, reserving laparotomy for those cases in which there is severe and persistent hemorrhage.

LUCAS-CHAMPIONNIERE said that laparotomy is not a more dangerous operation than colpotomy, and is preferable to the latter in the treatment of hematocele.

TUFFIER classified cases of hematocele, that is, retro-uterine hemorrhage due to the rupture of a pregnant tube into adhesions in Douglas' pouch—as recent, old, or infected. In old and infected cases, colpotomy is the operation of choice, as it is less dangerous than a laparotomy, and equally as successful. It is otherwise in recent cases, for in these hemorrhage is to be feared. Twice he was obliged to leave clamps in position to control it. This is not surprising when one considers that the vascular supply is greatly increased not only at the site of the placenta, but in the omentum, intestine, and throughout the pelvic cavity.

POZZI said that the matter could be summed up in the few words: perform a laparotomy if the tumor is abdominal and a colpotomy if it is pelvic.

REYNEIR said that a few positive cases of hemorrhage had greater weight with him than many in which no hemorrhage occurred. He still insisted on the danger of colpotomy, which ought not to be undertaken unless all preparations had been made to go on with laparotomy if necessary.

July 12th, BROCA described an operation performed upon a child three days old for imperforate rectum, the anus appearing normal. The operator, Caston, by a posterior perineal incision removed the coccyx, and found the lower end of the rectum nearly two inches (4 cm.) above the anus. It was drawn down with difficulty. The operation was successful. Comment was made that the operation performed was suitable to the case but was not to be recommended as a general operation for imperforate anus.

POUSSON tested clinically the different indirect methods of overcoming hypertrophy of the prostate (orchidectomy, vasectomy, and angioneurectomy), all of which aim to overcome retention of urine by reducing prostatic congestion. Although this is an important factor, it is not the only one, and the problem of radical cure of hypertrophy of the prostate is far from solved. Regular catheterization, cystotomy, cystostomy, prostatotomy, and prostatectomy will each continue to find its application in certain cases. The attempt should be not so much to reestablish spontaneous micturition, as to provide for easy and complete evacuation of urine and thorough washing of the bladder by means of a catheter. The processes of the gland in the bladder produce angles which retain purulent urine after careful washing, and thus keep up the cystitis. Pousson performed prostatectomy eleven times with four successes as far as spontaneous micturition was concerned, and seven successes relative to the disappearance of cystitis and purulent urine.

At the Medical Society of the Hospitals, June 30th, ENRIQUET and LEREBOULLET showed a man aged forty-seven having a generalized melanoderma due to prolonged treatment with arsenic. For eighteen months he took daily 16 drops of Fowler's solution to cure eczema of the hands and feet. The bronzing of the skin appeared six months after he began to take the arsenic, and as he was thought to have Addison's disease the remedy was continued. No gastro-intestinal symptoms were noted, nor lumbar pains, nor general weakness. The amount of pigment and correspondingly the depth of yellow or brown, varied in different portions of the body. In general it was more marked in the folds of the flexor surfaces than elsewhere. There was almost no pigmentation of the hands and feet. Emaciation was only slight. After the drug was discontinued the color of the skin slowly changed toward normal.

July 7th, LERMOYEZ mentioned the case of a girl who began at the age of thirteen years to menstruate from the right external auditory canal, and who continued to do so every month for three years. Then menstruation from the uterus appeared and continued regularly, and the escape of blood from the ear grew less, and then appeared only every two or three months, and finally ceased altogether. There could be no doubt from the symptoms which preceded and accompanied this auricular hemorrhage that it was of catamenial character. The tympanum remained intact. The cutaneous vessels in the meatus were much enlarged, and the hemorrhage was produced by their rupture. There was no affection of the ear and the cause of the hemorrhage was difficult to determine. The girl could not be called hysterical, although there was present a certain degree of auditory anesthesia of the right side combined with a light hypo-esthesia of the tympanum and auditory canal. A coincidence of these two symptoms is one of the best-known signs of auricular hysteria.

THOINOT spoke of the prevalence of typhoid fever in Paris. When spring water was distributed through the city conduits to all the inhabitants it was hoped that the disease would disappear. Such had not been the case, however, and it was to be regretted that many of the sources of supply were not above suspicion.

WIDAL said that the populace was still ignorant of the need of boiling drinking-water and that it was the imperative duty of physicians to spread knowledge upon this point.

SOCIETY PROCEEDINGS.

NORTHWESTERN MEDICAL AND SURGICAL SOCIETY OF NEW YORK.

Stated Meeting, Held April 19, 1899.

THE President, WILLIAM STEVENS, M.D., in the Chair.

TUMOR OF THE STERNUM OF TUBERCULAR ORIGIN.

DR. J. BLAKE WHITE: The following interesting case came under my observation recently. The patient was an elderly woman, between sixty and sixty-five years of age, who came to me about a year ago complaining of a great deal of pain which was referred to the lower right edge of the sternum. This region was very sensitive to pressure. Shortly afterward a tumor presented at the junction of the ninth and tenth ribs with the sternum. As it was thought to be an abscess, an exploratory operation was advised. With Dr. Stevenson's aid the patient was anesthetized and an incision made over the tumor, which proved to be a tubercular growth springing from the edge of the sternum and apparently the result of a tubercular perichondritis. The tubercular material was cleaned out, the surface of the cartilages carefully scraped, and the cavity packed with gauze. The wound is now healing and the patient is doing well. The tumor doubtless originated from a tubercular focus aroused as a result of a traumatism received by the patient some time previous. No other evidences of tuberculosis are present, but two of the patient's five children died of pulmonary tuberculosis following typhoid fever and they manifested the most pronounced evidences of general tuberculosis that I have ever seen in an extensive experience. In one of these the disease was of the most malignant general type, nearly all the joints in the body being affected and showing marked tubercular degeneration prior to death.

ENLARGEMENT OF LYMPHATIC GLANDS DUE TO INFLUENZA.

DR. S. H. DESSAU: I have lately seen a number of cases of enlargement of the lymphatic glands of the neck and of the inferior maxillary region as a sequel of influenza. This condition is undoubtedly due to a septic process which is going on in the vault of the pharynx. Dr. Jacobi called attention to this fact some years ago, but not long ago it was supposed that the enlargement of these glands was usually tubercular and it was customary, especially among the German surgeons, to extirpate them at once. In some of the cases I have seen as a sequel of influenza they go on to suppuration but as a rule they subside under treatment of the catarrhal process. I recently saw in my clinic a case in which two glands were involved and the swelling was so great that the lobe of the ear was elevated. At one time they became fixed, which is usually an indication for surgical treatment. The child's mother was very anxious to have me remove the glands, but I persuaded her to wait. Under the internal use of calcium chlorid, alternated with iodid of iron, the swelling gradually subsided and the child made a perfect recovery. As an early treatment of the adenitis I have found a local application of a twenty-per-cent. preparation of oleate of mercury most satisfactory.

DR. S. N. LEO then read the paper of the evening, entitled

A CONSIDERATION OF OUR HOMES.

The paper, which was a most exhaustive one, dealt with the sanitary and hygienic arrangement of dwellings with reference to the propagation and spread of infectious and contagious diseases. According to the author faulty plumbing and damp cellars are often the cause of infectious disease, and carpets, draperies, picture-frames, and wall-paper, act as factors in spreading such disease, by

harboring dust and germs. He recommended that all plumbing, basins, closets, baths, and sinks, be situated in an annex and not in the dwelling itself; that cellars be made dry and kept clean; that all garbage be disposed of speedily, preferably by burning; that hardwood floors replace carpets, draperies be dispensed with, and wall-paper discarded for some hard finish which will permit of washing down the walls. He also suggested that a spare-room on the top floor of every house be set aside for use as a sick-room and for isolation. The importance of thorough ventilation was dwelt upon and methods of disinfection described.

DR. PALMER C. COLE: The scope of the paper is so vast that it is very difficult to discuss it. I agree with the author in regard to many points but not in all. For instance, I do not believe that moisture under a house will *per se* cause consumption. Nor do I think it is necessary to boil any material one or two hours for the purpose of disinfection. It has been shown that no spores will survive boiling for two minutes, therefore prolonged boiling is a waste of time. The same may be said of dry heat, for bacteria and spores of bacteria are immediately killed by being subjected for a few moments to a temperature of 210° F. In speaking of disinfectants, the author has omitted formaldehyd, which is one of the most powerful germicides we have. I first employed it four years ago in a case of scarlet fever, and since that time it has been recommended by the Board of Health. As to the dust in the air, we have this always with us. The air is loaded with bacteria, but, fortunately, most of them are harmless, and even the pathogenic bacteria must fall upon a fitting soil or they perish. Dust can never be eliminated from our modern dwellings. The model house which the author describes would indeed be desirable, but I fear it is an impossibility.

DR. CHARLES A. LEALE: the subject of the paper is a most interesting one and the author has covered the entire ground. I know a number of instances in which disease has been caused by defective plumbing and one in which prolonged ill-health was traced to the filthy condition of the water-tank. When tank-water is used it should previously be boiled. The bacterial source of disease in water may be destroyed by the addition of a small quantity of alum, which coagulates albumen and thus kills animal life. This was used here with benefit when cholera was prevalent years ago. I consider a paper of this kind of great importance, for I believe that we can do more for humanity by preventing disease than by medication. In regard to sanitation and disinfection, we will do wonders if we follow Nature's teaching. I was especially struck with this while making an ascent of Vesuvius and noting the results of sulphurous acid gas. The inmates of the monastery a little way down the mountain enjoy good health and live to a ripe old age because of the pure air which they breathe.

DR. ROBERT NEWMAN: Plumbing, ventilation, heating, and lighting are matters of such importance that they are made the subject of a course of lectures in nearly all our large colleges. The sanitary plumbing of late years is a vast improvement and is constantly being perfected. I am told that the plumbing of a house built five years ago is entirely out of date at the present time because of the improved methods now in use. Lighting by electricity is also a step in advance.

DR. S. H. DESSAU: The paper has brought to my mind the fact that physicians should educate themselves in sanitary science which, according to the author, embraces a knowledge of architecture as well as sanitary plumbing, ventilation and disinfection. A number of the suggestions offered impress me as very apropos, while others seem rather involved. The setting aside of a room on the top floor of a dwelling for use as a sick-room is a most excellent idea. I agree with Dr. Cole in regard to the value of formaldehyd. The danger of infection of draperies and wall-paper will be avoided if the formaldehyd lamp is employed during the entire progress of the disease, for in this way the germs are destroyed as they are given off from the patient. I consider this disinfectant one of the greatest improvements of modern times. I regret that the author did not offer some suggestions in regard to the proper ventilation of a house, for this is a most important point. The over-heating of our houses and the lack of ventilation are sufficient to condemn them from a sanitary point of view. If the medical profession would take up some of the points brought out in the paper and would keep them before the public, the men who build houses would eventually be obliged to build them on a different plan.

DR. A. M. JACOBUS: The author has given us a beautiful picture of an ideal but impossible city house. We should, however, see to it that the cellar of the house in which we live is not damp and that the plumbing is in perfect order—and the latter, at least, can be made practically perfect if the laws are carried out (and modern plumbing installed). My experience has been that a great deal of sickness is due to foul air from a damp cellar being carried up-stairs through the heating apparatus and otherwise, but I do not believe that typhoid fever or diphtheria can be caused in that way. If infectious-disease germs be present in the house-drain or water-closet pipes and these be leaky, of course occupants of houses may thus become infected. Another thing which requires attention is the heating of our houses. The modern house, especially the apartment-house, is over-heated and badly ventilated; the result being that the inhabitants are always ailing and especially with neuralgic and other nervous as well as pulmonary troubles.

As to filters, I approve of and believe the porous stone kinds to be absolutely necessary to insure pure water and especially to remove malarial and typhoid-fever germs, but I believe those filters which are made of wire, gravel, or charcoal, etc., to be not only worse than useless, but absolutely to be hotbeds for the cultivation of germs.

DR. L. DUNCAN BULKLEY: There can be no doubt that defective plumbing is a fruitful cause of illness. In an instance of this kind, the patient, a man, was ailing for years, suffering from cold-sweats, fever, and exhaustion. The plumbing was thought to be at fault and it

was thoroughly inspected, the usual smoke and peppermint tests being made, but nothing was found. The patient was so convinced that the plumbing was the cause of his illness that he obtained permission from the owner to investigate for himself. This he did, beginning at the bottom and going up to the top of the house, laying bare all the soil-pipes, and he was rewarded by finding a lead pipe so corroded that he could put his finger into it. New plumbing was put in the house and the man has not been ill since. The case is interesting because the government tests which were employed did not reveal the leaky pipe.

DR. HENRY LING TAYLOR: It is very difficult to build houses on hygienic principles in the city on account of the high price of real estate. This is the fundamental trouble and the result is that there cannot be enough light or ventilation. I am becoming more and more convinced that nothing is more necessary for health than sunlight; it is a great purifier of bad air. According to my observations, sunlight, fresh air, and diet are the most important factors in hygiene, cleanliness being of less importance. Give dirty people sunlight and fresh air and they will usually keep well. I can confirm what has been said in regard to the ill-effects of over-heating houses: I have had to regulate this in a number of instances. Moreover furnaces and steam-pipes make the air peculiarly irritating on account of its dryness. The same degree of heat from an open fire-place does not have this effect and is not so injurious.

DR. WHITE: A paper of this character is of great practical value. The two great menaces to health in the present construction of houses are associated with the plumbing and heating. The former has been somewhat improved of late years, but the latter leaves much to be desired. Our hot-air furnaces are faulty. The influx of cold air is taken from the outer air and passed through a long wooden box which is never cleaned. This should be so constructed as to permit of the removal of dust charged with animal matter which accumulates there. Another source of danger is the water-tank which supplies moisture to the hot air. This is filled in many cases automatically and never cleaned, the result being that there is an accumulated deposit of mud and filth at the bottom from which a poisoned vapor is sent through the house. This may be the cause of what we call "grip" which prevails in the autumn months, when furnaces are first put in use, and continues more or less until warm weather is established. This also doubtless accounts for much of our New York malaria. The author has covered the ground very fully in regard to the improvements which should be made in our dwellings and most if not all of his recommendations find in me cordial endorsement.

DR. J. H. FRUITNIGHT: The hygiene of habitations has a great deal to do with the health and happiness of the people. Sunlight is essential but we are robbed of it by tall buildings. Our houses are imperfectly ventilated, especially the halls which, as a rule, are not ventilated at all. It may not be out of place to refer to the most brilliant and striking example of the benefit of sanitary control which is afforded by Dr. Wood in his report on the present sanitary condition of Santiago. As may be imagined, the conditions of living were very primitive there. Cess-pools are used and when these are cleaned, the contents are carried through the dwellings. By the enforcement of sanitary measures, the death-rate of the population fell from nearly 100 per day in the early part of August, 1898, to 30 or 40 a week in January, 1899, and in the middle of February, 1899, there was only 1 death in a period of nine days.

DR. ROBERT A. MURRAY: In regard to faulty plumbing, a great deal of this is due to the fact that not one-tenth of householders understand *why* things should be done in a certain way. The open-plumbing of to-day is a great improvement over the old method. The mortality in the upper part of this city is 4 or 6 per 1000, and very much higher than this in the crowded tenement-house districts where it is 26 per 1000. This is higher than the death-rate of London, Glasgow, or Birmingham, and is probably due to the fact that we do not control the occupants of our tenement-houses, consequently they disregard cleanliness and other sanitary regulations. Our apartment-house are also conducive to ill health, for the reason that it is very difficult to properly ventilate them; they are usually overheated. All the rooms being on one floor it is impossible to ventilate one room without ventilating the others, consequently fresh air is dispensed with. In the ideal house, the sleeping apartments should be far removed from those occupied during the day—better on another floor. I am convinced that the mortality in hospitals would be lower if it were possible to remove the patients and thoroughly ventilate the wards; so that wards could be used in rotation.

DR. J. LEE MORRILL: Infectious gases may enter a house and cause disease. In a case which came under my observation the patient, a little boy, developed fever of a remittent type with persistent vomiting. A diagnosis of acute tubercular meningitis had previously been made by a prominent physician who is now dead. As the illness seemed to me to be of malarial origin I advised the administration of quinin. This was retained and the boy soon recovered. At my suggestion, the house was searched for defects in plumbing and it was found that the cement which surrounded the sewer-pipe in the cellar-wall had crumbled away, leaving a space through which foul-air from a break in the sewer some seventy-five or a hundred feet away was admitted to the cellar and thence to the rest of the house. This opening was closed and the boy has since remained well.

DR. LEO, in closing: As to the statement made in the paper in regard to tuberculosis being caused by damp cellars, I can only refer you to the authority I quoted—the Ninth Report of the Medical Officer of the Privy Council of Great Britain, Sir George Buchanan, in which he states they carefully investigated the causes of tuberculosis, and that the disease may be produced by moisture under dwellings. Such was their conclusion then.

As regards plumbing, I am pleased to be able to affirm that good American plumbing is the best to be found in

any part of the world. I have reached this conclusion after investigations made in the large Continental cities. My friend, the late Colonel Waring, was of the same opinion. The sewerage of New York, however, is bad. Most of the sewers were built during the days of the Tweed ring by contractors who grew rich but did the work badly. In some places the pipes run up hill, whereas there should be a slight descent or fall toward the outlet. The result is that only the fluid on top runs out while the solid part of the sewage remains in the pipe. It would cost millions of dollars to sewer New York properly.

Meeting of May 17, 1899.

FRACTURE OF THE NECK OF THE FEMUR; OSTEOMA OF THE FEMUR; GROWTH OF THE HUMERUS.

DR. JOHN F. ERDMANN: I have here some skiagraphs which are of exceptional interest. The first was taken in the case of a child, eleven years of age, who had sustained an injury of the right hip by falling on the pavement during a snow-storm. After this fall she was unable to walk. She was put to bed and seen by a physician who said that she had merely strained herself. I saw her about twelve weeks after the injury. There was then a large exostosis of the right hip and it was a question whether the case were one of fracture of the neck of the femur or a diastasis. As you see, the skiagraph shows very plainly that fracture of the neck had taken place. There is now thirty or forty degrees of flexion, with very fair rotation, and about three-quarters of an inch shortening.

The second skiagraph shows a so-called ossifying-hematoma or osteoma of the right femur. A peculiar feature of the case is that the patient, a physician twenty-nine years of age, has a number of these exostoses on various parts of the body. The tumor of the femur was first noticed about twelve years ago a little above the knee joint. There was a slipping and popping of the muscle as it slipped over the growth which was then about half an inch long and is now about one and a half inches long and one inch wide. I also found exostoses on the bones of the right forearm, one on the left ulna, and one on the left femur. The skiagraph only shows the one on the right femur. The growth is on the outer side of the thigh, although they commonly appear on the inner side and are known as "riders' bone."

The third skiagraph shows a bony growth of the right humerus in a man aged twenty-nine years. It was first noticed when he was twelve years old and grew very little during the succeeding ten years, but during the last three years it has increased rapidly in size. The tumor is at the upper part of the humerus and now measures nineteen inches in circumference, five inches in transverse diameter, and seven inches in length. It has the external appearance of a malignant growth, the veins are enlarged, but there is no involvement of the skin or muscular tissue. From the history I should say that it was originally an osteochondroma or ossifying hematoma which perhaps is now taking on a malignant change. The patient consulted me because of the pressure on the chest in the axillary line caused by the growth. The function of the arm is not interfered with.

In the second case the growth is also of long standing, and the question arises as to the possibility of there being a malignant outcome. It is generally believed nowadays that no matter how benign a tumor may be, it is best to remove it; yet, when I showed this case to the Surgical Society with a view to raising the question as to the advisability of operating, the concensus of opinion was to leave it alone so long as the growth did not give pain or interfere with function.

DR. HENRY LING TAYLOR: I am much interested in cases of fracture of the neck of the femur in young people, and recently showed two boys before the Orthopedic Section of the Academy, in whom the fracture resulted from slight injury in the sixteenth year. Since then I have seen what I at first believed to be another case occurring in a boy of sixteen years, but am now of the opinion that it is one of coxa vara associated with traumatism. It may be extremely difficult to differentiate between the two. As Dr. Whitman, who has done excellent work in this direction, has pointed out fracture of the neck of the femur is practically a traumatic coxa vara. Dr. Whitman has ascertained that the shortening in these cases almost invariably increases as time goes on. This is due to the fact that union takes place at a lower angle than is normal and the result is that the neck of the femur is not able to bear the weight of the body and yields under it. A shortening of from half an inch to an inch may in the course of several years increase to two inches or more with a corresponding aggravation of the limp. This is a very practical point. The cases should be followed up and watched and treated with a hip-splint like cases of non-traumatic coxa vara. Dr. Whitman is also of the opinion that these are cases of true fracture and that diastasis of the femur is very rare. The skiagraph shown this evening confirms all the points made by Dr. Whitman, except, of course, the increasing shortening which will no doubt be noted later on.

The third skiagraph reminds me strongly of a case seen a few weeks ago at the Hospital for Ruptured and Crippled occurring in a boy eleven or twelve years of age. The tumor was in the femur, just below the neck. It was of the size of an orange and had existed for about a year without causing any discomfort. Unfortunately the case passed from under observation.

CASE OF LUPUS TREATED WITH SCHWEINFURTH'S SERUM.

DR. ROBERT H. GREENE: I have under observation at the City Hospital a young man suffering from lupus. The disease is extensive, covering nearly all the body, has existed for years, and is steadily increasing. Various methods of treatment have been employed without benefit. Acting upon the suggestion of Dr. Fordyce, I procured from Washington a bottle of the new tubercular serum. It is a horse-serum made by Dr. Schweinfurth, the bacteriologist of the Department of Agriculture and differs from Koch's tuberculin which is an extract. This serum is manufactured for tuberculosis in

the same way the antitoxic diphtheria serum is prepared. I began giving the patient injections of 2 minims of the serum and gradually increased the amount until now he is getting 20 minims daily. He has had no other treatment and no special diet, but strange to relate the disease is getting better. The patches show a tendency to heal from the center toward the periphery. In this respect the effect is different from that which follows the use of tuberculin in similar cases, in which case a red zone is formed about the patch and the healing is from the periphery toward the center, the use of tuberculin, in other words, being attended with a local reaction as well as a general one as shown by the chills, fever, etc. Accompanying its use with the antitoxin tubercular serum in the quantities above described there is apparently no reaction either local or general.

CHANCRE OF THE LIP IN A YOUNG CHILD.

DR. L. DUNCAN BULKLEY: An interesting case came to me the other day from Dr. E. L. Cocks in which there were external manifestations of syphilis in a child seven months old. The initial lesion was a chancre of the lip which was apparently traced to the infected nipple of a nursing-bottle. Upon the trunk was a fully developed macular syphiloderm which had appeared three or four days previous. The disease could hardly have been congenital, for the child was well nourished and magnificently developed. The mother was healthy. The chancre was half an inch in diameter, not very sharply defined nor very characteristic; it exuded moisture. The glands under the jaw were enlarged. The child being bottle-fed the theory is that he was infected by some one who tasted the contents of the bottle to see if the food was of the proper temperature—a most reprehensible habit. I have never before seen acquired syphilis in a child so young, although plenty are reported in the literature.

DR. ROBERT A. MURRAY then read the paper of the evening, entitled

DYSMENORRHEA.

The author said in part: Dysmenorrhea, or painful menstruation, through its regular recurrence and dire effects in depreciating the vitality, limiting the usefulness, and destroying the happiness of women, is a subject demanding constant study. Frequently looked upon as a necessary consequence of the menstrual function, palliative measures in the shape of narcotics, stimulants (particularly alcoholics) are administered to the young as well as the adult female until habits of life are formed which often result in wrecked lives and fearful domestic tragedies.

Clinically the condition may be discussed under the headings of (1) congestive or inflammatory; (2) membranous; (3) obstructive or mechanical, and (4) neuralgic, and each variety may be complicated by acute or chronic disease of the tubes, ovaries, or uterus. Ovarian dysmenorrhea, as usually described, is really ovarian or tubal disease complicating one of the foregoing forms.

Theoretically the treatment of all forms of dysmenorrhea may be divided into that which is directed toward easing the pain and causing the flow to be free and which usually relieves all the symptoms, and that which is instituted between the periods to remove the cause. Congestion of the uterus may be relieved by the use of heat applied as a foot-bath, the feet being immersed for twenty minutes in warm water the temperature of which is gradually increased. The hot sitz-bath is of value, as are also hot fomentations to the abdomen, with or without rubefacients, such as turpentine or spirits of camphor. Dry heat in the form of the hot water-bag may also be applied to the lower lumbar region and the inner surface of the thighs. Warm drinks may be administered but the use of alcohol in any form is to be deprecated. In cases in which arterial tension is high, aconite, pulsatilla, and veratrum viride, in small doses frequently repeated, are very efficacious. Apiol in capsules and salicylate of soda, if a rheumatic diathesis exists, are often effective. Most of the coal-tar products relieve the pain, particularly if they be combined with codein in half-grain doses. Morphin and other preparations of opium are occasionally necessary but should be employed most cautiously. In full-blooded women the intense uterine congestion may produce a marked disturbance of the circulation. In such cases puncturing of the cervix will give relief and bring on the flow. In a few cases in which I have found the patient delirious with pain and in one in which there was marked congestion of the brain and the patient was in a comatose condition, great relief followed a free bleeding from the arm.

In cases of obstructive and membranous dysmenorrhea, after tonic and hygienic treatment have been employed without avail, a local examination should be made to ascertain the cause of the condition. Here I would most earnestly condemn the indiscriminate employment of vaginal examination in young girls without having previously exhausted all hygienic and medicinal means of relieving their dysmenorrhea. Before resorting to the vaginal examination, rectal touch should be employed to determine the size and position of the uterus and appendages. To the educated hand this method of examination is as satisfactory as that made by the vaginal route. If an operation seems indicated this and the preliminary vaginal examination should be done under ether to avoid shocking the susceptibilities of a young girl. Stenosis of the cervix, particularly at the internal os, and endometritis are among the most common causes of this form of dysmenorrhea. Dr. Sims advised and for a time practised splitting the cervix by bilateral incisions extending up to and including the internal os for the relief of this condition, but the operation is somewhat dangerous, frequently inefficient, and leaves the patient with a lacerated cervix. The introduction of graduated sounds, followed by intrauterine applications of iodin, carbolic acid, nitrate of silver, and other caustics, has also been employed but the method is not only ineffectual but is attended by the danger of infection and of setting up pelvic peritonitis. Electricity has also been used and one cannot deny that the cervix uteri can be dilated almost painlessly by means of graduated sounds attached to the negative pole with the positive pole upon the abdomen and the application

of the galvanic current—from five to fifteen milliamperes—for five minutes at frequently repeated sittings. The faradic current will also relieve the symptoms. My experience with electricity, however, has been disappointing because the results obtained have not been permanent, and it is my belief that this is due to the caustic action of the zinc pole upon the endometrium. The best method of treating these patients is by over-distention of the cervix by means of a manual dilator, a thorough curettage, and an application of carbolic acid. The operation should be done under anesthesia and should be preceded for a short time by the employment of boroglycerid tampons. The curettage should be preceded and followed by an intra-uterine douche of hot sterile water. If proper precautions are taken the dangers are *nil*

The neuralgic variety of dysmenorrhea is difficult to treat. General treatment should be instituted; but little else can be done. The patients seem abnormally sensitive to pain and to the worries and cares of life, and slight shocks to their emotional nature cause great aberrations in their vital functions. Locally little is to be made out but a sensitive or prolapsed ovary or a slightly atrophied or congested uterus. But even after these abnormalities have been corrected, the patients still complain. It seems to me that what such a patient most needs is not rest but a healthful occupation which would divert her mind. It is important that this condition be recognized lest the physician be persuaded to prescribe anodynes to such an extent that a habit is formed.

DR. SIMON BARUCH: The treatment mentioned by the author is the same which I have pursued for many years and, I am sorry to say, with very poor results. I am very pessimistic in regard to the cure of dysmenorrhea. There is only one class of cases which is amenable to treatment by tonics, *viz.*, that which is composed of overworked girls who have damaged their cortical cells by mental or physical strain. I am not a believer in the operative treatment of dysmenorrhea. Of the cases in which operation has been done in my clientele, I do not think I have ever seen one patient cured. I myself have dilated the cervix and have had my gynecological friends do it, and once have been obliged to consent to removal of the ovaries to relieve pain which was intolerable, but the results have been unsatisfactory. In the case in which oophorectomy was performed, while there is, of course, no more dysmenorrhea, the patient is still a neurotic wreck in spite of electricity, hydrotherapy, change of scene, etc.

I am heartily in accord with the author in what he says about the abuse of the vaginal examination in young unmarried women. For a great many years I was physician to a large institution in which many female teachers were employed. These poor girls feeling a little hesitancy about applying to me for relief from their ills, in some instances consulted our female colleagues who do not seem to have the same repugnance which I have to making a local examination in young girls, and after being treated with tampons, etc., they would eventually come to me for treatment of their anemic condition. In these cases tonic treatment was followed by the most beneficial results.

DR. ROBERT NEWMAN: Among the causes of dysmenorrhea the author has mentioned surf-bathing. In my experience I have found that bathing in salt water during menstruation does no harm, but that bathing in fresh water in many cases causes suppression of menstruation. I am glad to hear the author make favorable mention of electricity in the treatment of dysmenorrhea. I know of cases in which it has done wonders. In cases in which the uterus was not properly developed, the growth of the organ has been stimulated by galvanism and a common cause of dysmenorrhea removed. Again, neuralgic ovaritis, another cause of dysmenorrhea, is relieved by an external and internal combination of galvanism, and in some cases the high tension faradic current has been known to cure dysmenorrhea, acting as an analgesic.

DR. J. BLAKE WHITE: I can corroborate what the author has said in regard to dysmenorrhea being a symptom and the necessity of seeking for its cause. There is hardly a subject in medicine which calls for so much thoughtful sympathy for the patient and so much palliative treatment with judgment for its relief as dysmenorrhea. I have seen cases in which benefit followed the administration of the coal-tar preparations; others in which these drugs alone would not give relief, but would act well when combined with belladonna, camphor, and hyoscyamus. In some troublesome cases in which other remedies failed relief followed the administration of a warm enema, and where there is a tendency to constipation I have advised, with decided beneficial results, the administration of a full warm enema on the approach of menstruation and for the two or three succeeding days of its continuance.

Not infrequently, as we all know, a dysmenorrhea results solely from anemia and is promptly relieved by judicious ferruginous medication. I have found that some of these patients are more speedily and satisfactorily relieved from subsequent attacks of dysmenorrhea by different preparations of iron—sometimes combined with arsenic. Of course these cases are not due to local conditions which require other and more radical treatment.

DR. A. M. JACOBUS: It has always seemed to me that chronic dysmenorrhea, like headache, is difficult to discuss, and still more difficult to treat. According to my experience the condition is usually met with in young women with infantile uteri. They commit some indiscretion such as cycling, horseback-riding, sea-bathing, dancing, or get their feet wet during menstruation, and, as a result, get endometritis, pelvic peritonitis, ovaritis, etc. Nothing short of some operative procedure, such as divulsion and uterine packing, will relieve these cases and it should be performed, if possible, before the appendages become involved. If these patients do not marry and bear children, they often become neurotic and hysterical and suffer to the end of their menstrual life. Another form of dysmenorrhea results from a chronic endometritis following a miscarriage, especially when the latter has been induced. Sepsis after childbirth is also a cause of chronic dysmenorrhea. I have seen cases in which dilatation did good and others in which it had no effect. I

would not advise removal of the ovaries for dysmenorrhea any more than I would for insanity. Gynecologists know that most patients who suffer from dysmenorrhea also suffer from chronic constipation and chronic dyspepsia. Dr. Barker frequently said that constipation causes most of the trouble from which women suffer. In such cases, after treating the constipation and dyspepsia, I have obtained good results from the use of bromids, in 10- or 15-grain doses, three or four times a day before and during menstruation. The fluid extract of hydrastis acts well if the patient is inclined to flow freely, as do also the viburnum preparations. The high tension bipolar faradic current, given *per vaginam* two or three times each week, before and after the menses, is also a valuable remedy. In some cases tampons saturated with the commonly used boroglycerid mixture will give relief. If there is some displacement of the uterus which cannot be rectified by operation owing to the objection of the patient a pessary may be of benefit. Pessaries should not be used, however, if the uterus is bound down by adhesions or if the patient will permit surgical interference. Constitutional treatment should be employed as indicated.

In regard to the vaginal examination in young girls, I do not not advise it unless there is a very good reason. It is rarely necessary, for we can determine all we want to know by rectal touch.

DR. S. H. DESSAU: As a general practitioner, I have met with these cases of dysmenorrhea and have my own views upon the subject. Gynecologists, as a rule, are too apt to consider dysmenorrhea as due to some cause which can only be removed by operation. This was impressed upon me recently by the case of a young schoolteacher. She was a delicate, neurotic subject and, as I found out later, a sufferer from chronic intestinal indigestion. She had dysmenorrhea for a long time and finally consulted a gynecologist who is connected with the Woman's Hospital who told her, after having made a vaginal examination, that an operation was imperative. She and her family were much shocked, and she was brought to me by her mother. I examined the young woman, since this had already been done, and found nothing abnormal and no indication for operation. I soon convinced myself that the girl was suffering from chlorosis and nothing more. I treated her for this condition, and in three months she had no more dysmenorrhea. This was two years ago, and she has had no return of the pain.

I regret that the author did not dwell upon the points of differential diagnosis. Some years ago I saw a very instructive case. The patient was a young married woman who for several months had suffered intense pain during menstruation. She was seen by a prominent gynecologist, now dead, who advised Battey's operation. She declined this, however, and passed through several other painful periods during which I saw her. One day she came to me with a phosphatic calculus which she had passed and after that she never had pain during menstruation. Strange to say, the patient had always referred the pain to the region of the right ovary.

DR. BULKLEY: I know dysmenorrhea only as a symptom, for I do not pretend to have any knowledge of what goes on inside of my patients, yet my experience in the treatment of this symptom has been so good that I fear no one will believe me. The discussion has gradually led up to what I am about to say, for Dr. Jacobus has alluded to constipation and Dr. Dessau to a phosphatic condition. I wish to speak of the condition of the urine. Some three or four years ago the late Dr. Etheridge of Chicago read a paper upon deficient excretion of the kidneys in women suffering from the diseases peculiar to them, showing that a sympathy exists between the kidneys and the uterus and appendages. In the following year I read a paper on deficient excretion and advised an alkaline treatment for these patients. Some years ago a young girl came to me with a bad acne of the face. She also suffered from dysmenorrhea, for which she had been treated, but without benefit. She was in a miserable condition, being so weak that she could not walk upstairs to my office. I placed her upon the following:

℞	Potassii acetatis	ʒ i
	Tinct. nucis vomicæ . . .	ʒ ij
	Ext. rumicis rad. fld. . . .	ad. ʒ iv.

M. Sig. Teaspoonful in ½ tumbler of water half an hour before meals, beginning ten days before the expected period.

Before six months had passed she was not only able to walk upstairs, but could walk a mile from her house to my office and she had no more dysmenorrhea.

Again, the wife of a prominent physician in Brooklyn came to me for some skin affection. Among other things she spoke of her dysmenorrhea, which was so severe that the advisability of having ovariotomy performed had been about decided upon. I put her upon the alkaline treatment and employed an old-fashioned remedy which had a marvelous effect—a small blister, one-inch square, applied over the ovary, one week before and during the period—and in six months she was well.

Of the coal-tar products I have only found one of any service and that is antefebrin, in 5-grain doses at intervals of one hour when pain threatens, and later every two hours. It should be taken in hot water with a little whisky.

DR. J. RIDDLE GOFFE: I do not think that Dr. Bulkley's opinion in regard to the treatment of dysmenorrhea differs very much from that of most gynecologists. The treatment he employs is right in line with that which I believe is being used by all of us, except, perhaps, those extreme gynecologists who see nothing but what they think indicates operation. It is very largely a matter of hygienic management of the case and general treatment directed toward improving the nutrition and metabolism of the body.

I take a much more sanguine view of these cases than that which has been implied by some of the speakers and for this reason I do not hesitate to encourage patients to submit to come under treatment. The cases can be divided into two classes: (*a*) women who are married and have borne children and who have actual disease in the

pelvis, and (*b*) young women and girls. The former can and should be cured by removing the pathological condition in the pelvis which causes the dysmenorrhea. The latter are neurotic and anemic, as a rule, and what they need most is to have their digestion and assimilation put in order. Hygiene plays an important part here. I do not give drugs, except tonics, nor treat the patient as if the condition were a local one, but regulate the patient's life. The patients are usually women exhausted by social requirements, by study, or by hard work. The uterus is infantile because physical or mental overwork has prevented its development. There seems to be a strange law that if a woman passes through the period of adolescence without vitality to develop these organs sufficiently to perform their functions, the condition becomes chronic and requires an unusual degree of stimulation to relieve it. I order these patients to ride a horse or a bicycle, to row, and to do anything which will develop their general vitality and give them good blood. I am also a great believer in hot baths. I tell my patients to take a hot bath daily, as hot as they can bear it, and then spray themselves with cold water afterward. This makes the skin active. These baths should be kept up during menstruation. There seems to be a tradition that it is not safe for a woman to bathe while she is menstruating, but there is absolutely no reason why she should not; on the contrary, there is every reason why she should bathe, for a woman never needs a bath more than she does at that time. Surf-bathing, however, should not be indulged in. I also believe with Dr. Baruch that bathing stimulates the nerve-centers. If there is much pain during menstruation I make the patient keep very quiet. This is the plan upon which I treat these cases and I find that it works well. I have relieved many cases of dysmenorrhea by simply employing hygienic treatment. Sometimes, of course, I am not successful, in which case I insist upon a local examination and usually find some local cause for the painful menstruation. I do not believe in "obstructive" dysmenorrhea nor that the pain is due to an anteflexed and retroverted uterus; the latter is simply an undeveloped uterus.

DR. MURRAY, in closing: I have but little to add. I am fully aware of the deficiencies of the paper, which was not intended to be exhaustive, but merely suggestive. It is my belief that in my cases dysmenorrhea is due to deficient oxygenation. This explains why young girls who suffer from painful menstruation improve at once and with no treatment when they are taken out of school.

In regard to the blister over the ovary, this is a very old practice which was carried out with the idea that an ovaritis existed. It possesses, however, two advantages, *viz.*, it controls the circulation and keeps the patient quiet—the latter a most important point. It has the same effect in pleurisy.

I am convinced that surf-bathing is the cause of dysmenorrhea, and have known pelvic peritonitis to follow a sea-bath during menstruation. I am in favor of a warm douche, for the sake of cleanliness, during the period. Some women during the last day or two have as foul a discharge as that which accompanies sapremia after labor.

THERAPEUTIC HINTS.

For Non-Tubercular Bronchitis.—

℞	Potassii citratis	ʒ iv
	Suc. limonis	℥ i
	Syr. ipecacuanhæ	ʒ iv
	Syr. simplicis q.s.ad.	℥ iv.

M. Sig. One teaspoonful every two hours.—*Wood.*

A Liquid Vesicatory.—Fold a bit of gauze to the desired size, wet it with the solution given below and apply to the skin for ten or fifteen minutes. This is a convenient means of producing rapid vesication.

℞	Aq. ammoniæ concentrat.	Part i
	Ol. camphorat.	Parts ii.

M. Sig. External use.—*Gnépin.*

For Aphthæ—It is stated by DE MIA that from observation of the results obtained by the use of a number of different applications in this disease he concludes nitrate of silver to be the most efficacious. If the aphthous spots be pencilled twice a day with a six-per-cent. solution a cure may be expected in four or five days.

An Antiseptic Powder.—The following combination of drugs is recommended by PICK:

℞	Hydrarg. chlor. corros.	gr. ½
	Ac. borici	℥ i
	Ac. tannici	gr. x
	Sacchari lactis	℥ i–ʒ iiss.

M. Sig. External use.

For Painful Dyspepsia.—The following preparation is prescribed either for simple painful dyspepsia or for that due to carcinoma:

℞	Cort. condurango pulv.	ʒ iv
	Aquæ	℥ x.

Macerate for twelve hours, then evaporate the decoction down to 5 ounces. Of this the dose is a tablespoonful three times a day.—*Friedrich.*

Or this:

℞	Cort. condurango pulv.	ʒ iv
	Ac. hydrochlorici	gtt. xv
	Syr. cort. aurant. amar.	℥ v.

M. Sig. One tablespoonful every two hours.—*Krauss.*

For Facial Neuralgia.—

℞	Butylchloral. hydrat. } aa	ʒ iiss
	Spiritus }	
	Glycerini	ʒ v
	Aq. dest.	℥ iv.

M. Sig. One or two teaspoonfuls a day.—*Boucquillon-Simonsin.*

For Anorexia in Dyspepsia.—

℞	Sodii arsenitis	gr. i–ii
	Aq. dest.	℥ viii.

M. Sig. Two or three teaspoonfuls a day.—*Dubove* and *Rémand.*